Depleted uranium is used to create birth defects, cancers, annihilate the ennemy, yet the "ennemy" mostly is constituted of civilians, it is a kind of extraordinary justice against populations suspected to support terror groups (while they are in general oppressed by them). There is no need for DU in warheads since explosivity is reached otherwise (we show the use of nano levels of nuclear fission : indeed traditional nuclear bombs are hypercritical, compression brings mass millions of times above criticity so any warhead can go once or twice above, with tiny pieces of HEU / Pu). Iraq, Afghanistan, Yemen, Syria, Pakistan, Vietnam... (yes, Agent Orange is not linked to birth defects in that country). All of the benefits of the book will go to Fallujah Pediatry unit, which receives very limited support from the Iraqi government, and to Alain Acariès, father of a dead conscript victim of DU in the Balkans, Ludovic.

Florent Pirot is a College of Europe (Bruges) and Sciences Po Lille graduate, PhD student in economics. Paolo Scampa, Associate Prof., is a former EU expert in health physics. Samira Alaani is Doctor in Pediatry and works in Fallujah Hospital where she deals daily with the birth defects caused by depleted uranium weapons used massively in the city.

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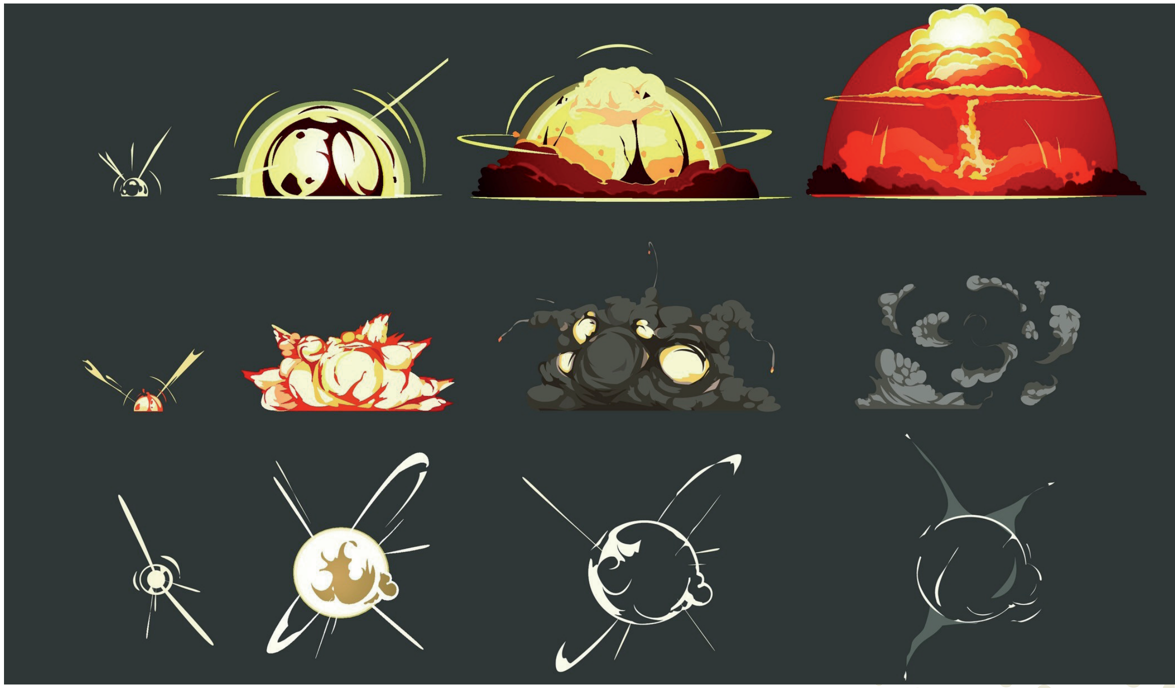

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Depleted uranium, the invisible genocide and the seeds of terrorism

By Florent Pirot, PhD student in economics, with a scientific *baccalauréat* (with the highest honours, « félicitations du jury »), and graduate from the College of Europe in Bruges and Sciences Po Lille.

Co-writters : Paolo Scampa, Associate Professor in the University of Bologna, former CORDIS expert in health physics near the European Commission, and Dr Samira Alaani, pediatrist in Fallujah General Hospital (Iraq)

Dedicated to the victims of Phantom Fury in Fallujah, to all the victims of depleted uranium, from Vietnam to Syria and Yemen, to the civilian victims of 9/11 that were used as pretext to wage war in Iraq, to the victims of Nazi Germany that could have escaped their fate if the nuclear technology for anti tank warheads had been provided to the USSR, to Alain Acariès, one of the many fathers of depleted uranium victims, and to my parents, Dominique and Robert Pirot.

All the benefits from the book will go to Dr Samira Alaani and the Fallujah Hospital unit for birth defects, and to Alain Acariès, who has had to suffer the humiliation of the French government refusing to recognize the responsibility of depleted uranium for the death of his son Ludovic in 1997..

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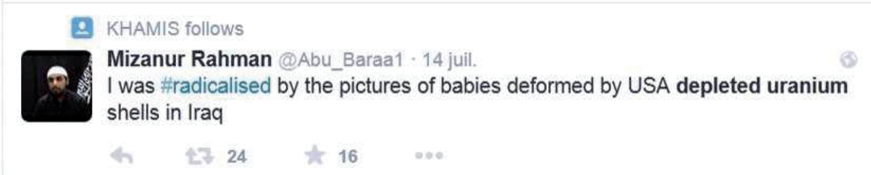
Introduction :

Let's immediatly start with the gallery of horrors of depleted uranium : you can find Dr Samira Alaani's page, updated daily, here www.facebook.com/pg/fallujahhospital2012/photos (scroll down as you can… you can also follow Dr Alaani on Twitter @FDefects, and Pyrophor, the association I created, @UraniumAppauvri and www.depleteduranium.org) but it is easy to find results by searching for « Fallujah Babies » on the Web. This is just a sample of what will follow, Fallujah is far from being the sole city with birth defects. Iraq, Afghanistan, before that Vietnam where we claim Agent Orange is not related to the defects and depleted uranium is, now Syria, Yemen are the major concerns.

We denounce in this book all the lies of public authorities regarding depleted uranium. We have some focus on France because the main author is French and lives near Europe's biggest military training area (not far from Cannes and St Tropez). We'll explain how the military warheads all work with what we call nano levels of nuclear fission : since the critical mass is vastly expanded by compression with explosives / kinetic impact and hydrogenation, and Fat Man for instance is, at implosion, millions of times above criticity level (because density is drastically increased by compression), you can go down to once or twice above criticity level with a few grams of highly enriched uranium. This is actually used to go through bunkers and armour, yet depleted uranium, which has been added later to it, is useless alone and presents few military interest as it can be substituted by non radioactive materials (however it is great for covering vast swathes of enemy land with radioactive dust that makes life impossible). The birth defects, however, are the seeds of hatred that were never acknowledged by public authorities, for instance in Fallujah (bombed in 2003 – 2004, birth defects in tragic levels since then, and has become an Islamic State stronghold in 2014 before a difficult liberation with even more uranium), and djihadi propaganda evidently benefitted from the horror of the American invasion, translated into baby deformities, cancers in huge amounts, as well as other illnesses like Down Syndrome (we'll come to that later). Abu Bakr al Baghdadi, according to US intelligence, himself was born in Fallujah and could not ignore the tragic fate of the city. It is obvious that birth defects were used as part of Islamic State propaganda. In the times where Islamic State militants had Twitter accounts (now fortunately all closed), one of them actually told his story : « I was radicalized by the pictures of babies deformed by USA depleted uranium shells in Iraq ».



KHAMIS follows

Mizanur Rahman @Abu_Baraa1 · 14 juil.

I was #radicalised by the pictures of babies deformed by USA **depleted uranium** shells in Iraq

We've also heard about clerics in mosques speaking about depleted uranium (in Jacques Charmelot's documentary on French television France 5, in 2013), of many people claiming « these weapons were invented by Israel / are a thing of Zionism » (which we'll see is entirely false : nano nuclear warheads were invented in Europe in 1939 / 40 and if Israel, as any modern State, uses them, it seems that is is on the contrary one of the few, if not the only, that does not add depleted uranium ballasts to its missiles, at least for bombings in Gaza and Lebanon[1]).

U238 itself is highly radiotoxical once inside the human body because of the high energy of alpha particles it emits. In high school, you learn that gamma rays are the more penetrating, and so it seems that they are the most dangerous. But this is wrong if you include inhalation / ingestion absorption of radioactive sources. In this case the case is reversed. Alpha particles are extremely heavy, approximatively 7 000 times more than beta particles (electrons, more precisely beta minus particles, the other main type of ionising particle) AND are thrown by radioactive decay much faster than beta – particles (in average 5 times faster than Cs 137 beta particles, 10 times faster than Strontium 90 beta - particles, 1 000 times faster than tritium beta - particles). Both elements mean that they will inflict heavy biological damage – this is known as relative biological effectiveness, RBE. Alpha particles do not travel far as their positive charge and mass mean they are quickly stopped yet all their high energy is deposited in a short parcel of tissue, on which the pain is concentrated. Inside the body especially, the short path of alpha particles is no hinder to high biological damage. There is always tissue to absorb (and suffer). The RBE is given as a relative of the damage caused by X-rays, which are energetic photons (alike gamma rays). Alpha particles are usually with a RBE of 10 to 20, the equivalent of neutrons, and much above beta particles (1, maybe 2,5 sometimes in recent estimations for tritium). Yet alpha particle RBE can increase much above, based on the law of Bergonié and Tribondeau, French scientists from the early 20th century which discovered that non-differenciated tissue, i.e. young cells in reproductive phase, are frailer and more sensible to radiation (so the French Autorité de Sûreté Nucléaire[2] concludes that children are more sensible). The results by Nagasawa and Little 1992 on hamster ovary cells in cell division phase are a clearer application of the Bergonié and Tribondeau principle : they come to a RBE of approximatively 6500 for alpha particles[3]. Hence this demonstrates that gamets, have a sweet spot for alpha particles and that areas exposed to depleted uranium dust are highly likely to have a strongly increased level of birth defects as populations will inhalate / ingest / absorb (through skin pores…) the nanoparticulates of U238 from the explosions which will circulate in the body through blood, nerves, lymph, and land in the genitals (especially as the standing position of the human mean that gravity will be a factor since dust is thin and heavy and will tend to go to the bottom of the body[4]). Nanoparticulates may also reach the fœtus after conception and create tumors, which are seen very frequently too, or defects which in this case would concern solely part of the body.

Calculations by health physics specialist Maurice-Eugène André (research available in the Bibliothèque Royale de Belgique since August 2003[5]) show that a small piece of 5 microns of uranium 238 emit in the lungs 7,5 Sieverts per year. Even a 1 micron piece will emit 60 milliSieverts per year, that is already 60 times the annual admissible dose for an adult in France. The actual issue regarding cancer is to be found not in destroyed cells but in damaged cells, the peripheral ones. It is these cells, still able to receive orders from the human body, yet likely to interpretate them wrongly, that are likely to receive indications that they must proliferate to compensate the losses nearby, but may proliferate without control. This has been demonstrated by Iyer, Lenhert and Svensson in 2001 (the « proximity effect »).

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[1] One hypothesis however is that this is aimed at reducing contamination on lands Israel intends to include in its territories. See below.

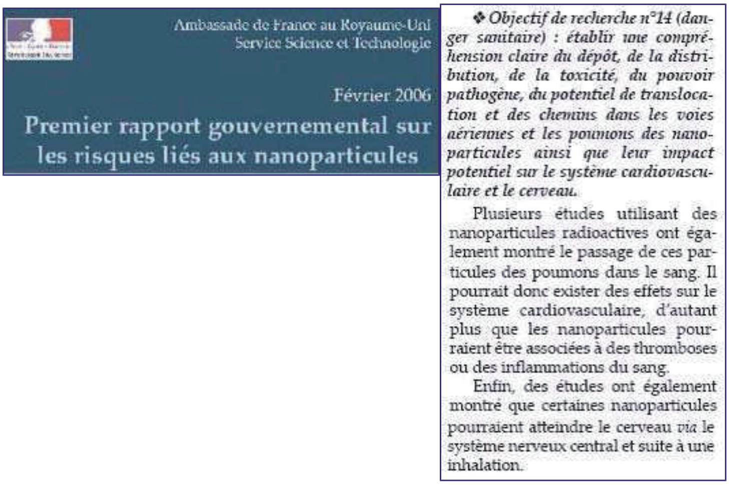
[2] https://www.asn.fr/annual_report/2016fr/index.html#48/z

[3] Simulated as always with helium-3 nucleii, quite similar in terms of mass and electronic charge, and easier to produce in an accelerator !

[4] In Martin Meissonnier, Frederic Loore and Roger Trilling’s book on depleted uranium (« The Invisible War », 2001), Carole Picou notes that Eric Daxon from the US Army knew very well that hands and feet of exposed persons tend to inflate – a clear inflammatory reaction of the body after dust accumulation

[5] accessibles à l'adresse http://bienprofond.free.fr/hiroshi/2005/IrradiationUA.htm

The ability of nanoparticles to travel the body is known since long. Uranium weapons spew a cloud of very thin dust, increased by the fact that the uranium ballasts are actually made not with sheer pieces of depleted uranium but with fritted material (an aggregation of very thin, dust-size particles, made to increase the incendiary effect and which will also increase the contamination – ready to use sometimes intentionally as an environmental weapon). We’ll see that it can travel very far away when sublevated by powerful warheads.



Ambassade de France au Royaume-Uni
Service Science et Technologie

Février 2006

Premier rapport gouvernemental sur les risques liés aux nanoparticules

❖ *Objectif de recherche n°14 (danger sanitaire) : établir une compréhension claire du dépôt, de la distribution, de la toxicité, du pouvoir pathogène, du potentiel de translocation et des chemins dans les voies aériennes et les poumons des nanoparticules ainsi que leur impact potentiel sur le système cardiovasculaire et le cerveau.*

Plusieurs études utilisant des nanoparticules radioactives ont également montré le passage de ces particules des poumons dans le sang. Il pourrait donc exister des effets sur le système cardiovasculaire, d’autant plus que les nanoparticules pourraient être associées à des thromboses ou des inflammations du sang.

Enfin, des études ont également montré que certaines nanoparticules pourraient atteindre le cerveau *via* le système nerveux central et suite à une inhalation.

this French report notes that radioactive particles can go from the lungs to the blood, can be associated with blood inflammations or thrombosis, and that they can reach the brain through the central nervous system after inhalation. Yet France also uses depleted uranium in its warheads, as we’ll prove later.

A literature review by Rita Hindin et al. (2005) “Teratogenicity of depleted uranium aerosols: A review from an epidemiological perspective”. (Environmental Health. **4** (1): 17. doi:10.1186/1476-069X-4-17[6]) concludes that « In aggregate the human epidemiological evidence is consistent with increased risk of birth defects in offspring of persons exposed to DU” (DU means depleted uranium). More studies on cell cultures and on rats conclude that depleted uranium exposure increases the risk of leukemia, of neurological damage, of genetical damage, or of damage at the level of the reproductive system (Miller, A. C.; McClain, D. (2007). “A Review of Depleted Uranium Biological Effects: In Vitro and In Vivo Studies”. Reviews on Environmental Health. **22** (1): 75–89. doi:10.1515/REVEH.2007.22.1.75.). In fact this is well known since the end of the Second World War, as we will see later. CIA experiments on unwilling subjects with plutonium, radium, uranium injections have demonstrated it[7]. These effects can be constated in Iraq, bombed in 1991, 1998 and 2003-2004, and in Afghanistan bombed in 2001 – 2002 (lines W075 and W076 , last WHO report on disability adjusted life years, http://www.who.int/entity/healthinfo/global_burden_disease/gbddeathdalycountryestimates2004.xls , show that Iraq has the world’s highest level of leukemias and lymphomas, and that Afghanistan is pretty close to second – but this is in spite of WHO efforts to suppress evidence of depleted uranium’s dangerousness to the human body (Owen Dyer, expert cited by the British Medical Journal in an article dedicated to proof erasure by the WHO https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1635642/). Lastly, Prof Timothy Mousseau and Anders Moller (CNRS researcher in Paris-Sud) have confirmed by their literature review in 2012 in *Biological Reviews* the mutagenic effect of low doses and thus the linearity of risk with exposure (there is no threshold below which no effect is seen)[8]. We will see below that this can be seen with epidemiological data on Down Syndrome, autism, schizophrenia and other mental handicaps. All of these have a genetic factor, either from the direct contamination of gamets or from the earlier exposure of parents leading to defects in the production of gamets because of mysfunctions. The peaks in Fallujah can be confirmed by increases of a lesser intensity in areas of high natural radioactivity where epidemiological evidence is available.

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[6] http://www.ehjournal.net/content/4/1/17

We’ll also come to an individual testimony from a French man, Alain Acariès, who lost his son because of depleted uranium. Yet it is far from alone. In Italy for instance a precise account of victims from the sole Balkans and Afghanistan operations has been aggregated by the Osservatorio Militare : 350 deaths of soldiers and more than 3500 cancers. Italy is a small military force and has not been involved in all the conflicts. For the USA and the First Gulf War another account by Denise Nichols (in the book by Meissonnier, Trilling and Loore) suggests 13 000 military deaths. Yet the book (the last major book on depleted uranium since this opus) was published in 2001 and the death toll has certainly increased since then. Furthermore veteran deaths from Vietnam should be also accounted. Some brain cancers (glioblastoma) have been particularly numerous and must be connected to uranium exposure in the war field[9]. So many illnesses can be related to the circulation of alpha emitters into the body, as the alpha particles can destroy any cell and thus affect *any* body function[10].

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[7] See « The Plutonium Files », Eileen Welsome, and Jean-Philippe Desbordes, *Atomic park* (in French) mentions uranium and radium injections as well – all are alpha emitters and they will produce more or less similar effects for a similar level of radioactivity injected

[8] http://onlinelibrary.wiley.com/doi/10.1111/j.1469-185X.2012.00249.x/full

[9] We’ve already noted the ability of uranium to travel to the brain ! Another article also demonstrated that result : Tournier, BB, S Frelon, E Tourlonias, L Agez, O Delissen, I Dublineau, F Paquet, and F Petitot. 2009. Role of the olfactory receptor neurons in the direct transport of inhaled uranium to the rat brain. Toxicology Letters doi:10.1016/j.toxlet.2009.05.022. John Mc Cain : brain cancer. Beau Biden, the son of the former US Vice President : brain cancer too (death). Beau went to Iraq, McCain to Vietnam where he stayed in jail, and travelled in the Middle East (Syria for instance).

[10] There are many causes for inhalation, ingestion of absorption of alpha emitters, radon is not the only one, see end of book

Birth defects are seen all across Iraq, not only Fallujah but also Basrah, Nadjaf, Baghdad, Ramadi, etc., all places bombed since 1991. In Afghanistan, this has been less publicized but the level is also extremely high, with very severe defects, unlike for instance Gaza where extremely few defects have been documented. We have seen nothing in Gaza like we have also seen in Yemen, where some cases have started to appear in the media (macrocephaly, recessive congenital icthyiosis ; Al-Najjar also described seeing “unprecedented” deformities in “brains, backbones, throats, digestive and nervous systems,” in babies born in Yemen, not only in Al-Sabeen but also elsewhere recorded by doctors in the country), and in Syria (one case of encephalocele in refugees (baby brain outside of skull in a skin pocket, another case of conjoined twins reported early 2017[11]) dealt with by a Canadian hospital, which managed to save the baby after a very long surgery, but we believe it is the very very tip of the iceberg). For these countries the information about depleted uranium has not at all been spread and this is obviously inducing a lack of documentation of cases, yet these very rare defects are a good indication, because for instance in the Balkans no such heavy defects were seen[12]. Yet many cancers can be observed near most military training grounds and operation sites. Quirra in Sardinia seems exceptional as birth defects like macrocephalia also peaked in the area but this may be linked to the fact the military range was extremely close to inhabitants. Canjuers in southern France (near Cannes), Bourges in the center of France and Dundrennan in Scotland are also places where peaks of cancers have been noted ; likewise in Navarra and Sardinia. Gaza is untypical in that even cancer rates do not seem to have significantly soared (see below ; there is an increase but not severe) even though there is all proof of the use of nano levels of nuclear fission, as usual since the Second World War in all missiles, shells and other anti tank bullets. It demonstrates that the first priority of the legislator must be to **ban depleted uranium and all other radioisotopes in warheads except highly enriched uranium (>95%)[13] ;** we also suggest alternatives to fission for armor piercing with low energy nuclear reactions (sometimes called, not correctly, « cold fusion », as kinetic / thermic energy IS involved) ; the use of tritium pellets or simply the inclusion of tritium in a shaped charge made with tungsten carbide, a neutron reflector, should be able to concentrate an explosive energy able to break armour – furthermore, the very fast neutrons released are able to melt down depleted uranium armour, which would not happen with fission neutrons, too slow for that.

PYROPHOR, our association, attempts to show the direct link between the war crimes and crimes against humanity committed with depleted uranium and the radicalisation of populations, their support for terrorism for instance. Iraq, Afghanistan, are field cases, Syria and Yemen, maybe Iran someday, shall be other ranges which matter. We also informally promote the use of cannabidiol against cancer and maybe birth defects (through DNA self reparation in foetii and gamets[14]). The efficiency of cannabidiol against cancer is well known. It can be used alone[15] and should be as it may have dangerous interactions with for instance opioids (morphine, codeine). Some states and countries also allow medical marijuana which can be used too, and may be used without leaf drying as THCa, the precursor of psychotropic THC, has antitumor properties, like THC, but is, unlike THC, not psychotropic, even though its anticancer properties are sometimes criticized[16].

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[11] The birth defects rate in Syria is reportedly high, surely because of DU dust fallouts from all of the wars in the areas

[12] I await proof of the contrary and will make remarks on it on depleteduranium.org, the website which I cater, but until now and after watching several documentaries, even though cancers are very frequent in the Balkans and some « light » defects may have seen, I have not seen any case as tragic as what I have seen in the Middle East

[13] For all weapons, both « conventional » and the usual kilotonic / megatonic : no plutonium shall be used. U235 has a higher critical mass yet we demonstrate forcefully that this does not hinder miniaturization. Tritium can be avoided, deuterium is enough as deuterium-deuterium fusion reactions with KE forces are enough to produce a neutron trigger. Tritium represents an added contamination of the surroundings of military areas which shall be avoided.

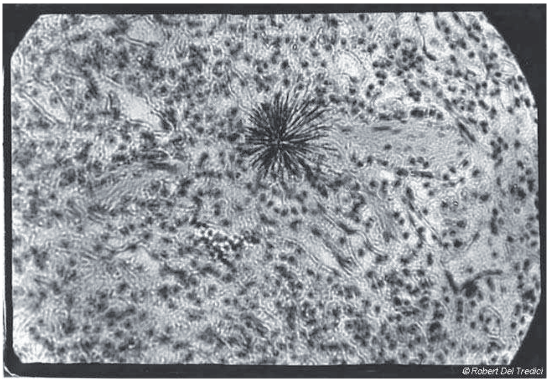
[14] Both are uncertain and never proven.

PYROPHOR supports IndependentWHO. It works with Paolo Scampa who provided parts of this book[17]. The name PYROPHOR has been chosen to denounce one of the lies of antitank warheads : debunking the claim that they work thanks to the inflammability of depleted uranium (pyrophoricity). DU is indeed pyrophoric yet this is not enough, fission is used.

We do not campaign, as implied above, against kilotonnic / megatonnic warheads, i.e. the « nuclear ban ». Nuclear warheads for mass destruction will never disappear as they represent a prisoner's dilemma (non-cooperative strategies such as lying while pretending to disarm are the most efficient). I will not comment further on the intellectual abilities of « Nuclear Ban » campaigners.

Most elements in this opus are available on www.depleteduranium.org. We have tried to summarize it in a clearer way and to make it available to the general public in a « solid » form (books still are a « tradition »...). Benefits from the book will go, as stated earlier, to the pediatry unit of the Fallujah General Hospital and to Alain Acariès, who has had to go unsuccessfully through many attempts to get a pension for his dead son and had to pay many lawyers...

Chapter 1 : linearity no threshold model for radiation : any dose is damageful


© Robert Del Tredici

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[15] Or in combination with a chemotherapy, but why inflict yourself a chemotherapy when cannabidiol has been proved to work alone ?

[16] On cannabidiol and THC https://www.cancer.gov/about-cancer/treatment/cam/patient/cannabis-pdq#link/_13 the official US website is a first reference. We would suggest using undried leaves of high-CBD content hemp in maceration (with milk or butter – vegetalians can use soy milk for the same results) for cancer treatment. On THCa see https://www.projectcbd.org/ciencia/cannabis-dosing/dosing-thca-less-more

[17] http://aipri.blogspot.fr/

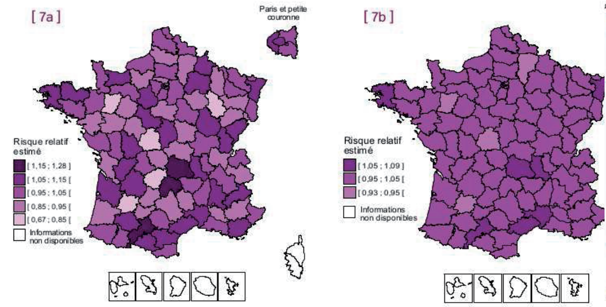
On your left : examples of alpha particle destructivity in mammals (laboratory experiments (Pu239 in monkey lung), see also for instance CE Nielsen 2012 Cancer Research, 10.1158 0008-5472.CAN-12-1824, pictured is work by Robert del Tredici 1998). Both show the shots of alpha particles around a single particle.

A) Cancers and birth defects

Radon is a radioactive decay product of uranium and thorium (Rn222 from U, Rn220 from Th), which is present everywhere but in excess where natural radioactivity is high, for instance near uranium mines as these are always opened where uranium is plentiful and, more importantly, easy to extract[18]. So granitic areas may have a high natural radioactivity but not be as dangerous as areas for instance with quartz-pebble (natural radioactivity will also have to be high but the rock is different, uranium oxyde can be corroded by water more easily and radon will get through more easily too). Southern Finland for instance is cladded with granite, but is not a major uranium mining area. Western Brittany too (it’s hard to mine uranium in hard rock!).

The « radon risk » map in France and the map for the relative infantile cancer risk are very well juxtaposed (especially the ex-post estimate with a Bayesian model on the right).

[Figure 7] Risque relatif de cancer de l’enfant dans les départements français (2000-2011)



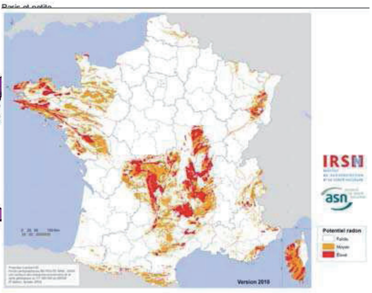


Figure 1 : Carte du potentiel radon des formations géologiques à l’échelle 1:1 000 000, version 2010

(a) Risque relatif de chaque département estimé par le taux d’incidence standardisé sur l’âge (SIR) ;
(b) Estimations a posteriori des risques relatifs par un modèle hiérarchique bayésien BYM (Besag *et al.*1991)
Source : Registre national des hémopathies malignes de l’enfant et Registre national des tumeurs solides de l’enfant, 2000-2011

Two of the three highest ratios in the left map are found in regions of very elevated natural radioactivity. The third is the department of Haute-Garonne (Toulouse area) known for very high air pollution. Regarding air pollution (also : Western Paris area), this may look like an extraordinary claim but in the follow up we will demonstrate the high content in terms of alpha emitters of fuels, linked to the use of shaped charge technology (and hence nuclear fission) in oil drilling. The Bayesian ex-post estimate leaves no doubt on the general trend. A comparison with a map of high commercialization of pesticides (produced by a team of journalists headed by Elise Lucet from France 2 public TV) shows on the opposite a lack of direct effect regarding infantile cancers. This is a further element to reinforce our claim that Agent Orange has no relationship to the many birth defects in Vietnam, a country that was bombed when depleted uranium liners for shaped charges and other DU ballasts started to be patented (see below, chapter 3) 9. B).

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[18] https://www.populationdata.net/wp-content/uploads/france-uranium-mines-stockage.gif document IRSN

Natural uranium, depleted uranium, and all the radioactive decay products of uranium, as well as thorium and all the actinids, transuranics, present the same problem as they are mostly alpha emitters (there are some major beta emitters in actinids, Pu241, and Pb-210 in the uranium decay chain for instance, but these are a minority). The oxyde nanoparticles from the ground, as well as depleted uranium oxyde, are all able to travel through the body. They can for instance travel to the bone marrow and cause leukemia, but any cancer is likely to be caused by some alpha emitter because of the vast territory that nanoparticles can invade in the body – in fact, simply everywhere. We have suggested above that many other illnesses than cancer can be triggered : any cell can be damaged, any function can be hindered or permanently diminished. We have noted the very high rate of leukemias and lymphomas in Iraq and Afghanistan (WHO DALYs 2004). A more precise comparison between 2000 and 2015 using WHO data[19] gives some significant increases on Iraq, and, more importantly, BLATANT increases in Afghanistan for leukemia (+ 100%, as compared with a world average increase of 18 %), lymphoma (+55%, to compare with a world increase of 29 %), brain / nervous system cancer (+78%, to compare with a world increase of 27 %) and other malignant neoplasms (+68%, compared with a world average increase of 36 %). In Iraq, the increases of leukemias (+42%) and brain / nervous system cancers (+54%) in the same timeframe are also significant but one must not forget that Iraq had already been massively « dusted » in 1991 and received several missiles in 1998-1999 (Souad al Azzawi demonstrated that they included depleted uranium as well, see below). Afghanistan is much more significant in this 2000-2015 timeframe as it had stayed virgin of missiles for several years since the departure of the Soviets (so even if we hypothesize that the Soviet Union added DU to its missiles like its enemies, the wind has blown since they left the country – nevertheless I do not find reports about a specific increase of birth defects in the immediate aftermath of the Soviet war in Afghanistan).

On birth defects, the increases in Pakistan, Afghanistan and Iraq are significant. There has been an average decrease in world numbers of defects (-6%). The number of birth defects in Iraq increased by a whopping 52 % between 2000 and 2015. In Afghanistan, the number of defects increased by 17 %. All the other countries where strong increases in defects are noted in the same period are rapidly developing countries which may have in addition to that an oil drilling industry (which involves frequently shaped charges with nuclear fission, as we will prove in Chaptre 3) 9. E.), involving contamination of fuels with radioactinids and thus alpha emitters in fumes. Developing countries are likely to see a very rapid increase of use of cars and other vehicles. Furthermore all of these countries do not use or have the ability to access to echography and abortion. This has to be put in the balance when looking at the decreases in India and China on the same period. In Saudi Arabia, the birth defects level remained almost even between 2000 and 2015. In Iran the rate decreased. It also increased in Pakistan (+10%) but this may be linked to the military training grounds in the country as well as to… the drone strikes, especially since the beginning of 2008.

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[19] http://www.who.int/healthinfo/global_burden_disease/estimates/en/index1.html

Testicular cancer also increased significantly in Iraq (+51%), Pakistan (**+200%**) and Afghanistan (+57%). According to WHO world data for the same period testicular cancer remained extremely stable (very slight augmentation, +8%). Ovary cancer followed a similar explosive trend (+60 % increase in Iraq, +58 % in Pakistan, +93 % in Afghanistan while the average world increase amounts to +30 %). Oesophagus cancer also increased significantly (world average +1,9 %, Pakistan +37 %, Iraq +36 %, Afghanistan +58%). Stomach cancers increased significantly in Afghanistan and Pakistan. Colon cancer : world average +35 %, significant increases in all three countries. It is clear that the digestive system as well as the reproductive systems are highly likely to be contaminated. The link ovary / testicle cancer // birth defects is particularly obvious and demonstrates with force the common cause : depleted uranium dust going down the body because it is a heavy metallic element and circulates with gravity down the body. Testicles, for instance, seem slightly more exposed than ovaries. Prostate cancers are also increasing very significantly in Pakistan (+62 % for a global increase of +38%).

B) Down Syndrome

The map of radon (a descendent of uranium through radioactive decay) and the map of Down Syndrome in the US (with a sample of 10 States with a differing levels of radon contamination[20]) can be very easily juxtaposed. This is a clear confirmation of results on low levels of radioactivity (Mousseau and Moller 2012 *Biological Reviews* have shown the mutagenic effects of low doses of radioactivity).

Regions with strong radon contamination like Utah, Iowa and Colorado all present the most elevated levels of Down Syndrome. Georgia also – the capital of the State being in an area of strong radon contamination, this is not surprising, especially as the data on Georgia gathered by Mikyong Shin, Lilah M. Besser, James E. Kucik, Chengxing Lu, Csaba Siffel, and Adolfo Correa focuses only on the capital city.

Texas, Oklahoma and Arkansas have the lowest levels of Down Syndrome, and these are regions with low radon contamination. If we take Arkansas, the lowest of all, as a reference, there are 45% more cases of Down Syndrome in Iowa (the other extrema).

Natural radioactivity is very low in England and Wales and of course, the rate of Down Syndrome too (6,6/10 000[21]).

It is obvious that radon, like uranium, is absorbed by the digestive system (water can contain as well high levels of dissolved radon in contaminated areas) and the lungs (for uranium as fine dust) and can circulate through the whole body, for instance through nerves, so for instance in gonads, as demonstrated by the very elevated levels of congenital malformations in Iraq and Afghanistan. It can thus also affect the meiosis process, for instance directly in the gonads – alpha particles hurting cells in multiplication and pushing more DNA ribbons than should be in a gamet that will nevertheless be able to work. Also, as compared with the average US rate of Down Syndrome recorded in the abovementioned study (11.9 / 10 000), the rate recorded in Fallujah is 5 times as elevated (49 / 10 000, or 30 / 6 049 births surveyed in a period of 11 months in 2009[22]). It can be compared with another Sunni population, in Saudi Arabia, where the rate is much lower, 18 / 10 000[23], yet still very high (can be explained perhaps by the human consumption of dessalinated water, uranium-rich as is seawater). The link between inhalated or ingested low-level doses of radiation and Down Syndrome prevalence has been already demonstrated : see for instance Bound – Francis – Harvey 1995, Kochupillai et al 1976, Schmitz-Feuerhake et al 2009, and Robert-Gnansia et al 2007. More than 14 / 10 000 in Vietnam, low natural radioactivity, yet as we claim victim of the first depleted uranium bombings (birth defects there are not the Agent Orange's responsibility), high variations in regional prevalence should be expected.

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[20] http://pediatrics.aappublications.org/content/124/6/1565..info

[21] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3746270/

The time needed for some of the radon descendants to decay into stable isotopes (lead 212 for instance) explains pretty well the fact that elder parents are more likely to have a children with Down Syndrome. The contamination of gonads through nerves and blood is certainly essential to induce production of gametes with a non-regular caryotype, under influence of the highly energetic alpha particles (in Iraq, see also radium 224).

Down Syndrome is frequently tied with autism and a very interesting correlation between autism and natural radioactivity levels can be seen for instance in Portugal, where an extensive survey on more than 300 000 schoolchildrens has been conducted, as well as in Fallujah with depleted uranium used in the war. See below.

Two occurrences (live births) of the very exceptional trisomy 18 (Edward's Syndrome) were noted in the sole city of Fallujah by Dr. Samira Alaani in 2017. Dr Alaani is not the sole pediatrist working in Fallujah and she cannot access to all the data of her colleagues. There is usually one case of trisomy 18 over 800 000 live births (one in 6500 but 95 % do not come to term).

C) Autism

A wide ranging study of autism in Portugal by Oliveira et al 2007 (more than 332 000 children through school directors)[24] demonstrated significant regional variations : Algarve presents the lowest rates (2,4 out of 10 000), the Azores the most elevated rate (15,6 out of 10 000). The Azores have extremely elevated radon levels, recorded near volcanic fumes (up to 15 000 Bq / m³ in habitations in Sao Miguel). In the Centro, which is the continental region of Portugal where the autism levels are the most elevated, the natural radioactivity levels are also enormous. Lisbon gets its tap water from that region (from Tomar) and must receive contamination from uraniferous sediments transported by water ; a further factor to take into account is of course the contamination of fuels with alpha emitters (see again chapter 3. 9. E.). The South of Portugal presents a lower natural radioactivity and lower autism levels. Samira also recorded a strong increase of autism and

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[22] http://jima.imana.org/article/view/10463/0

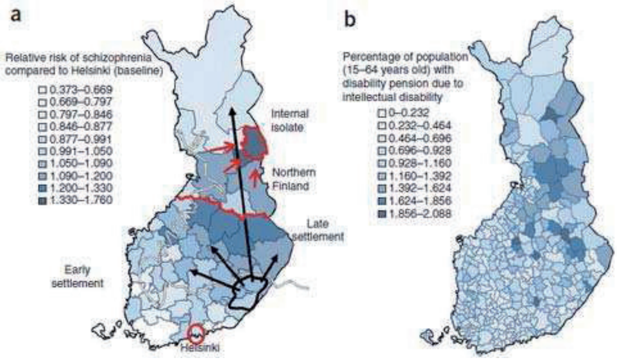
[23] https://www.ncbi.nlm.nih.gov/pubmed/7750976

[24] https://www.ncbi.nlm.nih.gov/pubmed/17880640

ADHD after the depleted uranium bombings in 2003 – 2004 ; we argue it is not the result of some kind of post traumatic stress disorder but a genetic effect of internal contamination of parents with alpha emitters, as confirmed by Portuguese results. The genetic factors behind autism are well known. The low mobility of the Portuguese population (even though many Portugueses have emigrated, internal migration seems relatively low as compared for instance with the USA where, therefore, it is more difficult to conclude on local levels for illnesses which do not represent an immediate handicap).

D) Schizophrenia and other mental handicaps

Schizophrenia is genetically a kind of « symetrical » of autism and epidemiological records in Finland (Haukka et al 2001) do confirm the link with the facility of contamination with uranium.



The genetic isolate in the North can be directly linked to a de novo mutation caused, someday in the past, by alpha emitters. The low mobility of the Finnish population is key in making this analysis possible. The map on the right designates uranium mining projects with triangles. Mining areas in general are in the areas where contamination is the most important because all tailings, be they from uranium mines or not, are a source of contamination for the surroundings. Granite, in the south, means less contamination than more permeable rocks, in the north.

We argue that Vietnam was the first country targeted heavily with depleted uranium. Micro-fission as always but depleted uranium added (for the first time). Agent Orange is not related to the defects, uranium is. Thanh Hoa is in the North, Ben Tre in the South. The natural radioactivity levels are low in South East Asia[25].

The rate of people with schizophrenia in population aged 17 and older was 1.7 % (95 % CI : 1.0 % -2.3 %) . In Ben Tre, this rate was 1.1 % (95 % CI : 0.4 % – 1.8 %) and in Thanh Hoa it was 2.4 % (95 % CI 1.3 % – 3.6 %). The incidence of epilepsy in the group aged 17 and older was 3.8 % (95 % CI : 2.9 % – 4.8 %), in which in Ben Tre was 3.6% (95 % CI : 2.4 % – 4.8 %) and in Thanh Hoa was 4.1% (95 % CI : 2.6 % – 5.7 %). Generally, disease burden of both schizophrenia and epilepsy, under the community based mental health programs in communities was 4.7 % (3.7% – 5.8 %), of which in Ben Tre was 4.3 % (95 % CI: 2.9 % -5.6 %) and in Thanh Hoa was 5.4 % (95 % CI : 3.6 % – 7.1 %). Burden of Mental Disorders total, including neurotic and psychotic disorder is: 19.4 % (95 % CI : 17.5 % – 21.2 %) in the general population aged 5 years or older (N = 1824). In particular, the rate of people with mental disorders in Ben Tre was 14.3 % (95 % CI : 12.2 % – 16.5 %) – significantly lower than that in Thanh Hoa, at 26.1 % (95 % CI : 23.0 % – 29. 2 %). In children 5-16 years old, mental disorder rates were 20.5 % (95 % CI : 15.7 % – 25.3%), of which, in Ben Tre was 19.1% (95 % CI : 12.9 % – 25.4 %). The proportion of people with mental disorders in adults (17 years and older group, N = 1546) was 19.2% (95 % CI : 17.2 % – 21.1 %). Thanh Hoa had a significantly higher rate (26.8 %, 95 % CI : 23.4 % – 30.3 %, P < 0.001), compared to Ben Tre (13.5 %, 95 % CI : 11.3 % – 15.8 %). *(official Vietnanese data RTCCD*[26]*)*

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[25] Comme toute l'Asie du Sud-Est, qui n'est pas une région d'exploitation minière de l'uranium. Lire par exemple https://www.ncbi.nlm.nih.gov/pubmed/22434923

Coming back to Down Syndrome, the Vietnamese rate, 14,3 / 10 000[27]*, is also quite above what would be expected given the low natural radioactivity, but this is a national result. Significant regional variations can be expected.*

E) Others

For Inclusion Body Myositis, Dimachkie and Barohn 2012[28] note significant variations, with a very low level in the Netherlands and a very elevated level in Minnesota and Australia (the Netherlands have a very low natural radioactivity, it is much higher in Minnesota and Australia, a traditional country for uranium mining).

To conclude, I suggest that natural radioactivity in general has been a prime factor for genetic variations in the human species and that Darwinian selection meant that the most competitive variations were conserved (which means that for instance, a competitive mutation may appear in a region with low natural radioactivity, even though this is more likely in regions of high natural radioactivity). Nevertheless high natural radioactivity is also a very strong economic handicap.

Chapter 2: What are depleted uranium weapons ?

1) How to hide nano levels of nuclear fission in conventional shels

Let’s note first that a French veteran from the Armée de Terre has entirely confirmed the following. Nano levels of nuclear fission are used in all conventional weapons (he confirmed it for explosive weapons but I argue it is even used in small 15 mm armour piercing bullets which melt down holes in tanks). The process is simple : since Fat Man reaches millions of times criticity thanks to compression and hydrogenation, you can do exactly the same with millions of times less highly enriched uranium while still being once or twice above criticity and thus obtaining the chain reaction which locally produces very elevated temperatures able to melt down any armour (10 000°C according to Jane's Defense Review). The effective mass of plutonium in Fat Man at detonation depends on the assembly time. Compression increases effective mass. For instance, Effective mass = ((2000 / (200 * 10 ^-6)) * 6)/9.81 = **6,1 millions of kilograms**. Compression by explosives at 2000 meters per second, assembly time 200 microseconds (Bruce C. Reed in *The Physics of the Manhattan Project* gives that number), 6 kilograms of Pu239. Hence it is possible to divide by one million the amount of Pu239 and still retaining criticity. For U235 the hydrogenated (dissolved into water) critical mass without neutron reflectors is, according to the EuroNuclear Society[29], 1,42 kilograms, 0,87 kilograms for Pu239, 1,1 kilogram for U233. Compression, hydrogenation and neutron reflection with tungsten carbide are of course all used to optimize the use of the costly fuel. Both compression and hydrogenation are mentioned in the famous 1939 patent 971-324 by Joliot Curie, Halban and Kowarski. It is possible that this patent was quickly stolen by Nazi Germany, or leaked.

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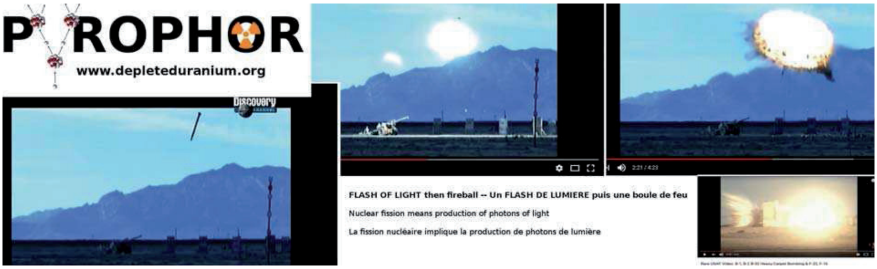
[26] http://www.ifpvnalumni.org/index.php?option=com_content&view=article&id=342

[27] https://www.omicsonline.org/evaluation-of-trisomy-21-screening-by-fetal-nuchal-translucency-thickness-maternal-age-and-biochemical-serum-in-the-south-of-vietnam-2161-0932.1000122.php?aid=6975#7

[28] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3535450/


PYROPHOR
www.depleteduranium.org
Discovery
FLASH OF LIGHT then fireball -- Un FLASH DE LUMIERE puis une boule de feu
Nuclear fission means production of photons of light
La fission nucléaire implique la production de photons de lumière

This sample has been taken to underline, thanks to the middle picture, the succession flash of light → fireball which is highly typical of nuclear bombs. The picture on the bottom right shows another example of US bunker buster. We will provide many more examples in the following.

Some pretend "depleted" uranium weapons were first developed by Israel. They were developed by the USA much earlier, during the Manhattan project. But, at least in 1940-45, depleted uranium was not added to the micro-fission devices (see below for proof of use from 1940).

BLU warheads (still used) are well known for these flashes. A multiplicity of such flashes can be seen at the dropping of a CBU bomb[30], it can be also seen in each video of a BLU-82 "Daisy Cutter" drop or of many bombs during the Vietnam War (see video[31] inbetween 01:00 and 01:15 and also at 1:26). This is not a missile powered weapon, dropped slowly for anti-personal effect, the nuclear energy is not focused in a single direction to destroy a tank and hence the flash is more visible. See also this Russian copy[32] of the BLU-82 : a flash can also be seen in the smoke plume at the very beginning of the video. Same for the newer MOAB, the flash is obvious if you slow down to the maximum the Youtube video at 0:20[33]. This works also with missiles on the instant of the blast (undelayed), see for instance for the Brimstone[34] and, for the bunker buster in the bottom of the first picture, with more flashs during carpet bombing, see esp. at 3:28 the MOAB flash[35].

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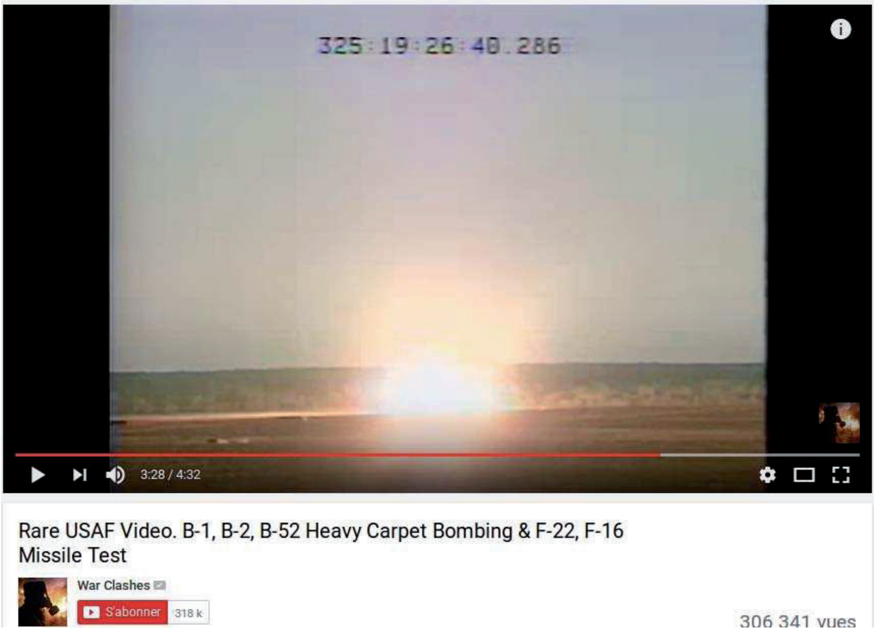
[29] https://www.euronuclear.org/info/encyclopedia/criticalmass.htm

[30] https://youtu.be/nWPeYG1ZOis

[31] https://youtu.be/ED1KFkl_5nA?t=59s



Rare USAF Video. B-1, B-2, B-52 Heavy Carpet Bombing & F-22, F-16 Missile Test

(That's a bunker buster so most of the energy is directed inside the ground and the flash is less visible relative to the power of the bomb)

Slow down the bombing of Baghdad in 2003 and you can clearly see the flashes[36]. That's another interesting example. Very clear flash at the exact impact of an Israeli Military Industries bunker buster, following image. Israel still seems to refrain from adding depleted uranium to its warheads.

As you can see the flash comes always before the fireball, at the very beginning of the explosion, exactly as in any nuclear test even though it's much much less powerful. Israeli raid on Gaza 2014 (video) :

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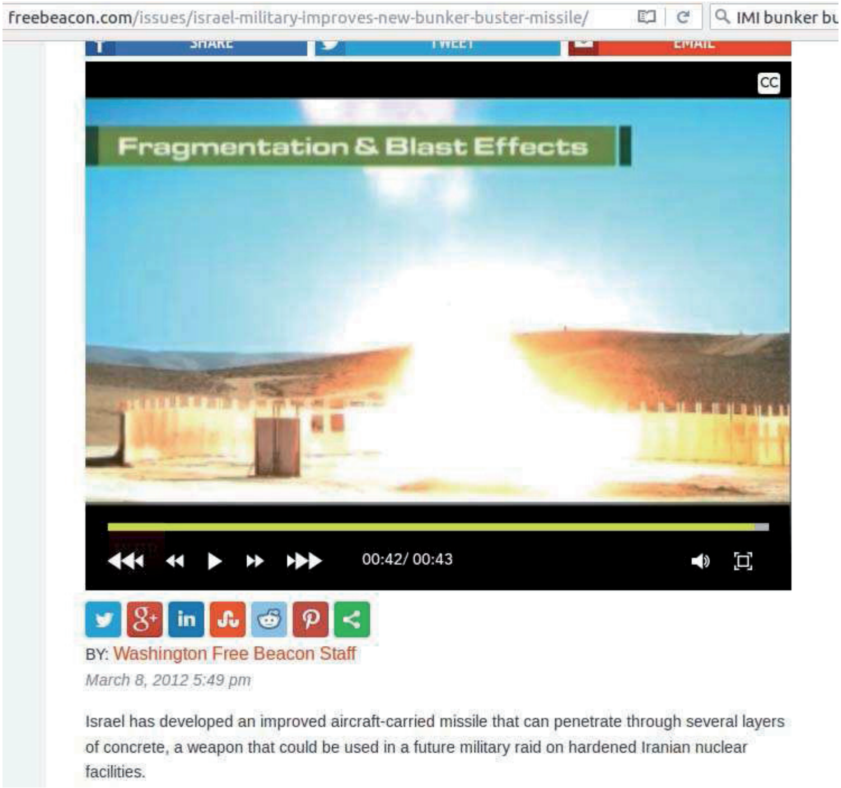
[32] https://www.youtube.com/watch?v=nXFC-ayFmD4
[33] https://youtu.be/i9H50tHiHjs?t=20s
[34] https://youtu.be/oo6M1ZQcsh0?t=1m46s
[35] https://youtu.be/UxgiBJATe9M
[36] https://youtu.be/g-oZj8ABJqc

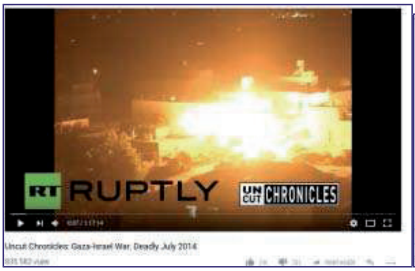


freebeacon.com/issues/israel-military-improves-new-bunker-buster-missile/

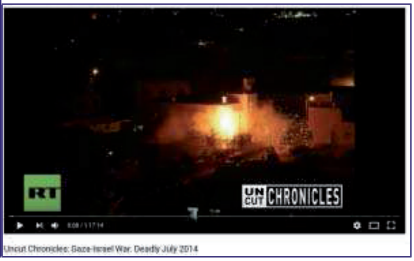
BY: Washington Free Beacon Staff

March 8, 2012 5:49 pm

Israel has developed an improved aircraft-carried missile that can penetrate through several layers of concrete, a weapon that could be used in a future military raid on hardened Iranian nuclear facilities.



Uncut Chronicles: Gaza-Israel War. Deadly July 2014



Uncut Chronicles: Gaza-Israel War. Deadly July 2014

Another example with a thermobaric bomb : one can see very easily the production of light in the bottom left corner.

See also the video[37] of a German Panzerfaust DM32 “Bunkerfaust” for very clear flashes of light (from 01:59). Same story : small amounts of U235 compressed with powerful explosives.

The workings of this Russian “thermite” bomb (Syria 2016) are identical (except we suggest that sodium-24 from the new BN-800 fast reactor is used as a neutron source[38], explaining the powerful fire combinated with the flash) :

Here is something trickier : the flash[39] in the SECONDARY blast[40] a few seconds after impact[41] of a shell during the First Gulf War is also clear proof of a criticality event (first link : soldier report, second link : National Geographic documentary on the Gulf War, third link : video of a flash recorded after the impact) : two criticity events in fact, one at impact to drill a hole into the bunker or the tank and the second one a few seconds later thanks to delayed neutrons. In France these antitank shells are known sometimes as “obus-flash”. A testimony told me about these weapons that “the warhead drills a hole in the tank, and a few seconds later *the flash melts down the tank*“. The explanation is that inside the tank, the water vapor from the corpses creates a favorable enviromnent for neutrons from fission products (delayed neutrons) to create another chain reaction with the remaining U235. The tank acts as a kind of small nuclear reactor (reflecting also neutrons quite well). A turret explosion ensues.

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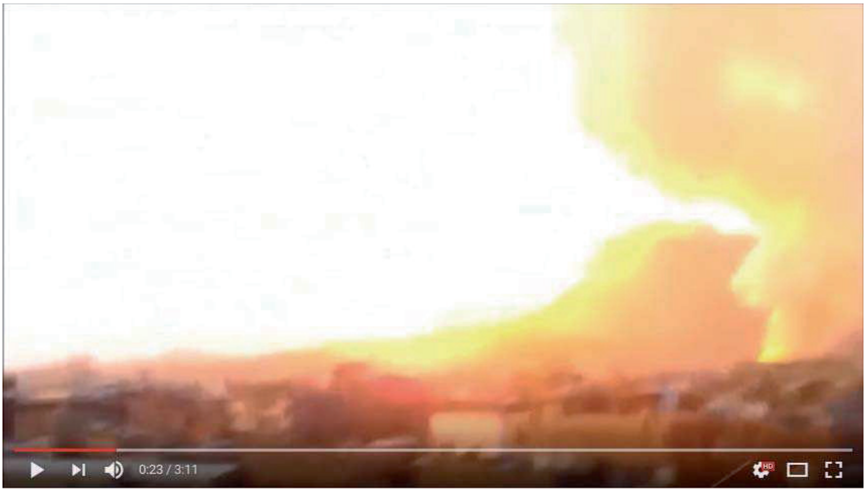
[37] https://www.youtube.com/watch?v=YVJwl44niv8

[38] A neutron source is always used, we will discuss tritium below. Sodium-24 produces 2000 neutrons per Ci when mixed with heavy water, this has to be confronted with Po210 + beryllium (only 2 neutrons per Ci for this very old neutron source). Radium is used for oil and shale in order to pretend it is naturally present (we come to that later)

[39] https://youtu.be/6-VlHanOScQ?t=16m32s

[40] https://youtu.be/nWwB22x3lFY?t=16m23s explanations at 16:50. All weapons use nuclear fission (the shaped charge M830 too and it of course has a depleted uranium liner to compress the U235 tip – the US army solely reports on depleted uranium in kinetic energy penetrators but all US weapons use depleted uranium ballasts / liners)

[41] https://youtu.be/qDm8TW6HCU8?t=29s very beautiful example



Here is a great, yet particular, example (the picture above) : this video[42] of the plume of “plasma” after a Saudi bomb smoked a bunker in Yemen. There is a first explosion at 0:16 at the impact of a very fast missile. Then at 0:21 there is an explosion INSIDE the plume, which spreads lots of sparkles and creates a blinding light all around the city (so people need to duck for cover). At 0:23 when the camera comes up again one can still see the light of the flash, that is STILL totally blinding since there is no reason for the nuclear reaction to be interrupted. I wonder whether the target (old Soviet missiles stored in a bunker) meant that more propergols and more U235 were added to the fireball. Nevertheless the chain reaction would not have started without the neutrons from the Saudi weapon[43].

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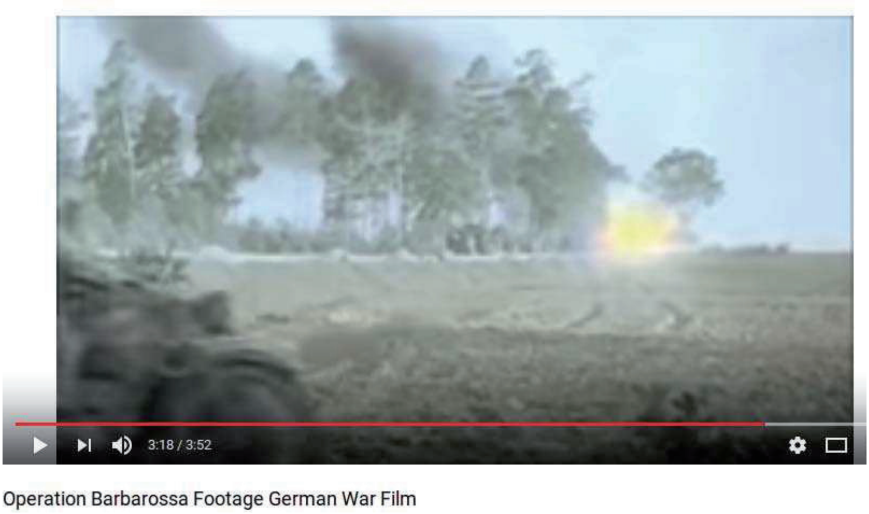
[42] https://youtu.be/dSn1sD2RT4U

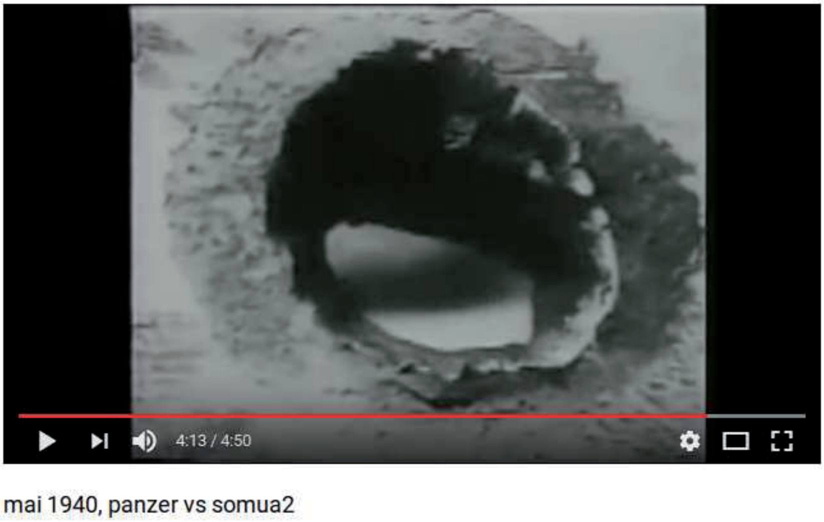
[43] Claims that it was an Israeli raid are ridiculous. End.

2) The history of nano levels of fission in conventional weapons

Very impressive flash from German bomb (in colour, Barbarossa footage) : https://youtu.be/xpYvl3zhDeQ?t=3m16s)

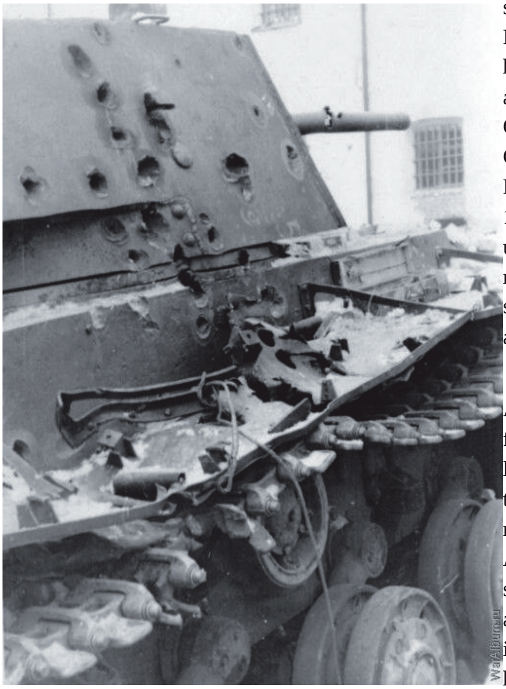


Operation Barbarossa Footage German War Film



mai 1940, panzer vs somua2

Millions of soldiers of the USSR died to fission shells, Faustpatrones, Panzerfausts and RPzB rockets and the war & Holocaust lasted long in spite of the Soviet human superiority (in terms of numbers) because of these weapons and because the Allies who also developed these weapons kept them for themselves. France lost in 1940 because of the first fission shells that Nazi Germany quickly developed, more industrially than France even though France had its own nuclear industry after the Joliot-Curie, Halban, Kowarski patent for the fission bomb in May 1939. Yet nano levels of fission are a huge business, which means that no one of the victims of Nazi Germany, not even the Federal Republic of Deutschland which today produces as well such weapons, will acknowledge the use during WW2 and the contribution to Nazi Germany's first successes. Frenchmen, as we said, had patented the fission explosive device, yet the first discovery of fission was presumably in Italy in 1934 by Enrico Fermi, and it *may* have contributed to German advance in the field even though it is claimed that Fermi left « as soon as he understood » in 1938, remaining out of Axis countries after retrieving his Nobel. The name of Nazi Germany's first shaped charge, the *Faustpatrone*, sounds deliberately Italian and may have been some kind of homage. France also had developed shaped charge in 1940, yet too late for Nazi Germany's invasion. Rainer Karlsh has first documented Nazi Germany's advances in nuclear research, in Oranienburg, uranium enrichment plant in German territory[44]. Dresden in 13 – 15 February 1945 and the Panzerfaust from 1943 are good examples of the earliest uses of fission. It is clear from the multiple flashes of light[45] which prove supercriticity (up to 3:14, see also here[46] and for the Panzerfaust : –→https://youtu.be/IcoLpH5qeFY)



Again, nothing else than supercritical fission can melt down holes in armour like this, so precisely like laser (even though we think that low energy nuclear reactions are a suggested substitute). Another "delayed blast" (second wave of supercriticity triggered by the progressive arrival of delayed neutrons from the impact) : https://youtu.be/9NwX0EYht7g?t=3m51s.

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[44] See http://www.independent.co.uk/news/world/europe/radioactive-nazi-atom-bomb-bernd-th-lmann-germany-amateur-treasure-hunter-a7963521.html article mentions also high cloud of fumes (7000 meters of altitude) from explosion at the end of 1944 in Nazi territory, suggesting attempts at a nuclear test, yet with extremely low yield (see Sana'a example below for possible comparison)

[45] https://youtu.be/TjSm_UJ1gxc?t=2m30s

[46] https://youtu.be/gh-KWJWRjcI?t=41s

The flash is not visible because of the old quality of the video. Above, molten down holes into Soviet tank.

The Soviet army also had anti tank shells copied on captured German shells, certainly with help from the V. G. Khlopin Radium Institute, but in harsh undersupply, and with quality issues. It is again difficult to know whether the Allies provided more than limited technical support but I doubt it – the issue of WMD was certainly key and decision to limit help to the providing of a limited number of shaped charges (PIAT) was certainly taken. Sputnik Agency (Russian state media) owns an image of T34 Soviet soldiers looking at molten holes in a Panzer, taken during the Kursk battle in 1943. These holes look like kinetic energy penetrator holes.

It is obvious that France lost because of Nazi Germany's rush to the technology and massive immediate use, making the "Blitz" possible. With humanly inferior forces Nazi Germany also managed to keep the Soviets at bay for long, inflicting them so much losses. Fission shells, Panzerfausts and PZrB rocket grenades, also with fission , stopping tanks, led also to huge infantry losses. Russia commemorates all the victims yet won't acknowledge what caused their deaths. It is a shame that the Russian authorities won't disclose their people, millions of soldiers, civilians, were simply the victims of nuclear fission. All the public authorities of the major countries (USA, UK, France etc.) have the same responsibility to acknowledge that, France maybe especially since it was the first victim who had an equal number of tanks (Poland was underequipped in terms of armour, yet Nazis started certainly the war when they were equipped with the first shells) and was really the victim of the technology, not of the simple numerical imbalance. It is a further shame that no one would acknowledge that the Holocaust has lasted more time because of that. Nuclear fission fission shells and shaped charges helped Nazi Germany to kill MANY more people in gas chambers. **It is crystal clear that the Soviet Union did not receive more than limited support on how to make these shells because of fears it would accelerate its path toward the atomic bomb[47]. Yet it meant that Nazi Germany lasted much longer.**

3) Use after the Second World War

"Their artillery had the wrong type of ammunition, and their outdated bazookas only bounced off the armour", that's how the commenter of a TV show[48] about the Korea War actually disclosed unvoluntarily what is obvious when watching videos of the US bombings in North Korea. There are videos available on the Web of flashes during US airforce bombings in Korea which demonstrate use of nuclear fission, as thoroughly demonstrated on this website. One example in Korea is here https://youtu.be/th2oCbyuT2Y?t=2m10s. Another video extract https://youtu.be/0sJ1R58pQTs?t=2m25s. Very quick flashes at detonation. But the commenter actually disclosed the truth… that the first victory of the US and the UN in Korea was obtained only through extension of micro-fission to bazookas and artillery. The USA lost first and North Korea and China advanced up to the south of the peninsula, because of the absence of use of nuclear fission by infantry and artillery. They extended it to the infantry and artillery. These weapons are more precise than the unguided bombs used at these times! because the soldier can, simply, aim. So it improved dramatically the efficiency of the US army. Of course the weapons are ever used since then.

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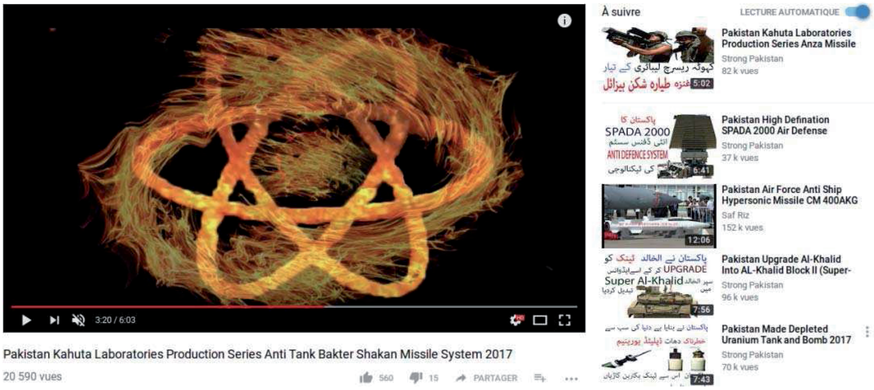
[47] I do not think this would have been so significant on the long term because of the vast inferiority of the Soviet economic organisation and of its lacklustre. But we will not rewrite history.

[48] https://youtu.be/0sJ1R58pQTs?t=9m14s

4) Proofs of the addition of depleted uranium

The first mention of depleted uranium seems to be a 1956 Kissinger telex explaining it is of a low radioactivity (found on the WikiLeaks database). It may indicate the first uses were indeed posterior and would confirm his involvement in the strategy consisting in polluting vast areas with it to fight communism.

There is a group called the International Coalition to Ban Uranium Weapons which fights against uranium weapons. But this group has a very limited definition of uranium weapons. It believes that there is a limited number of uranium weapons, which are 105 mm and 120 mm tank shells, and 30 mm bullets of A-10 Thunderbolt planes. As a consequence, a number of people who believe this will criticize the US or other governments only when they do a move which involves such weapons, and ignore totally the GBUs, cruise missiles and other anti-tank missiles. Lack of information and cruel naiveness. Indeed governments have more or less recognized the uranium content of this list of weapons. But there is much more, because uranium is the best penetrator in the world for anti-armour fight, it's the best against bunkers and any solid target which will resist all of its competitors, but not uranium. Governments have acknowledged the use of uranium in a few weapons which are not really used in civilian areas (because a tank will fire its shells mostly in open land, not in urban areas), so that people can believe urban areas are not contaminated with it. That's the explanation of the policy. But the ICBUW is gullible enough to believe them (or, better said, works for them), even though many proofs have been accumulated to demonstrate that cruise missiles and GBU bombs include uranium too.



Pakistan Kahuta Laboratories Production Series Anti Tank Bakter Shakan Missile System 2017

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Strong Pakistan
82 k vues

Pakistan High Defination SPADA 2000 Air Defense
Strong Pakistan
37 k vues

Pakistan Air Force Anti Ship Hypersonic Missile CM 400AKG
Saf Riz
152 k vues

Pakistan Upgrade Al-Khalid Into AL-Khalid Block II (Super-
Strong Pakistan
96 k vues

Pakistan Made Depleted Uranium Tank and Bomb 2017
Strong Pakistan
70 k vues

Illustration 1: Self explanatory illustration. Kahuta Labs are the main nuclear research facility in Pakistan.

There is also the list of patents of aerial bombs and cruise missiles which include uranium. Here is a first one recorded by David Williams http://www.eoslifework.co.uk/u23.htm#USpatreport. But that's not the only one, there are more recent patents (the list is from 2002). To this list the ICBUW replies that « patenting something does not mean you will use it ». Really ? But there is more. The second proof is even more accusing : the simple fact that places that were destroyed by missiles and GBU bombs have been tested with a Geiger counter, and radioactivity has been found here. Take for instance the Amariyah bunker destroyed by two GBU-27s in 1991 (it killed more than 400 people, many from the fire created by the weapons, fire from a GBU indicates clearly the pyrophoricity of uranium) : 10 years after it is still radioactive (see this video https://youtu.be/IsX41A8JiBw?t=8m47s) and Doug Weir himself from the ICBUW told me the levels were « surprisingly high » ! (to him, **too** elevated for depleted uranium so he discarded it).

UNEP finds in the Khiam crater 26 mg/kg of uranium 238, with 0.7% 235U and 0,005% 234U (highly radioactive). This 235U ratio is used to claim that it is uranium from the ground, even though the report of the UNEP also notes that « *the natural uranium content in the area (a localized zone of about 100 x 100 m [the bomb site]), was higher than average by a factor of about 10* » ! (see http://postconflict.unep.ch/publications/UNEP_Lebanon.pdf p. 151) – Seems that the Israeli Defense Force did a geological survey and decided to target a uranium vein ! (… No they didn't[49]) – See video of the bombing https://www.youtube.com/watch?v=BSvt3mZIk1U (at the beginning of the tape), looks very much like it is a missile and not a GBU (since the weapon is too fast to be seen). UNEP decided not to take into account the fact that it was known for long that natural uranium was also used in uranium weapons. UNEP decided to claim this was nothing of an uranium weapon, in spite of the evidence.

See also implicit acknowledgement by the UN ODA of use in Javelin-type missiles :

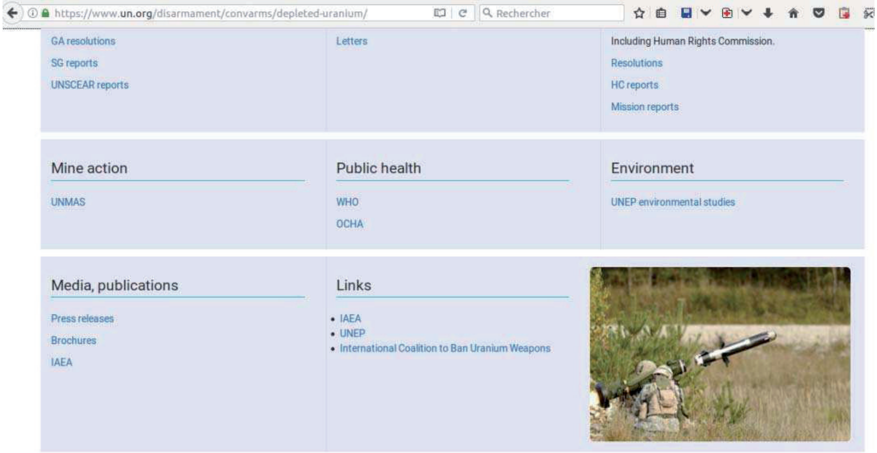

Illustration 2: Yet the ICBUW pretends no anti tank MISSILE uses DU ! Even the United Nations say the opposite

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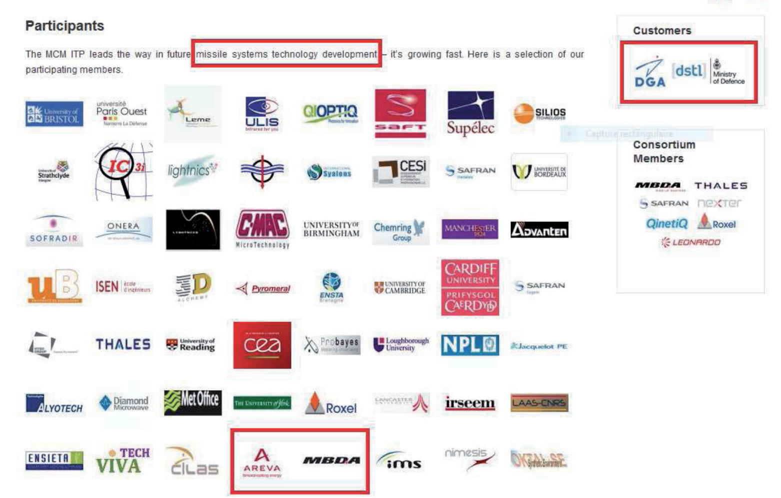
[49] Nevertheless the total pollution is still quite limited as compared to what is found elsewhere – less DU is used. This is unlike what happened all across Iraq. **Very few birth defects (if not any) recorded in places bombed by Israel.**

Add to this the findings of uranium dust in Lebanon and in Gaza by Dai Williams and Chris Busby, all with an isotopic ratio under the ratio of natural uranium (137.88), which indicates slightly enriched uranium (so we can discard the ridiculous hypothesis that this is « uranium sublevated from the soil »). The Lebanon soil comes actually from another crater near Khiam.

These samples were made near places bombed by Israel, with missiles / GBU, not with A10s, for instance. The Lebanon sample, in Khiam, is particularly significant in that it was a target of GBU / cruise missiles, there were not fired by tanks (it was an air raid), and it was not of course bullets from A10s that caused these craters ! The presence of uranium in air filters cannot be explained naturally, it MUST be because of uranium sprayed by the weapons.

Strong levels of radioactivity were also found in other Lebanese craters : with background levels of 0,03 / 0,06 uSv/h[50], the radioactivity in the craters reached 0,3 / 0,4 uSv/h. The radioactivity reported in the main crater is 0,8 uSv/h.

Doug Rokke too, the veteran with a Ph.D in health physics, who is sick because of contamination, indicates that places that were destroyed by cruise missiles were radioactive in Iraq. The video he did for the U.S. Army as part of a program he had been tasked to prepare in order to warn soldiers about the dangers of depleted uranium (the 40-hours long program was later shelved) said uranium was used not only in tank shells and small caliber ammunition, but also « as ballast in missiles » (https://youtu.be/U93PBZIyqBs?t=3m44s for the precise moment when the video mentions that uranium is used as ballast in missiles. Please again note that this was intended to be an official military training video on « **uranium hazard awareness** ». Again the ICBUW recognizes no use of uranium in missile ballasts).



www.mcmitp.com/participants/

Participants

The MCM ITP leads the way in future missile systems technology development – it's growing fast. Here is a selection of our participating members.

Customers

Consortium Members

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[50] Yes, natural radioactivity can be very low, below 0,10 uSv/h. We found similar results in Canjuers : very low natural radioactivity in some places (top of a hill), a few Geiger peaks at 0,35 uSv/h while circulating in a car in the middle of the military camp.

Currently AREVA is directly involved in the development of MBDA / Leonado / Nexter missiles ! What are they doing there ? They already are well skilled in the making of uranium weapons as AREVA, through its SICN subsidiary, actually manufactured uranium arrows for kinetic energy tank shells, in Annecy. The CEA, Commissariat à l'Energie Atomique, is also present (see in picture in the middle).

More again : the military journal Jane's (the reference in weapons) acknowledged twice, in 1998 and 2000, the use of uranium in two very widely used missiles, the Maverick and the Tomahawk. The journal later withdrew the information but this is probably a consequence of censorship. Jane's also once reported on its website that uranium had been used to increase the penetration effect of guided weapons (the information was later removed). But it can still be accessed through the Internet Wayback Machine : here[51] you will see that « It is true that some guided weapons used depleted uranium to increase the penetration effect« . By guided weapons, understand missiles and GBUs. Note that the BBC also once reported that GBUs are made with uranium[52]. I have also seen another video where journalists enter a building destroyed by a GBU with a Geiger counter (in spite of the fact it was closely guarded by the US military) and also find a lot of radioactivity inside (don't do that ! Never ! It's highly radiotoxic and dust is able to penetrate the best masks as it is so thin !). In Bulgaria, in a US cruise missile from the Bosnia war that had landed unexploded, in 1998, high levels of radioactivity had been found. And Satu Hassi, Environment minister of Finland, sent to all his European counterparts a letter stating that the majority of the 1500 missiles used against Serbia and Kosovo included uranium, about 3 kilograms each (which would absolutely match the uranium content expected in a Maverick or in a Hellfire).

There has been joint Anglo-French research on shaped charges liners with uranium – this has been recognized on the official UK Ministry of Defense website : see https://pyrophor.files.wordpress.com/2016/06/modduappendix-a2002.pdf. (page 2 at the bottom – « rear » means it's the main shaped charge, not the smaller front charge used to activate explosive tank armour)- below is a comparison between copper (on top) and uranium.

It has also emerged from an anonymous testimony in the French military that SCALP missiles (known as Storm Shadow in the UK) include a mass of uranium « for the KE penetrator ». The soldier who provided this testimony works in weapon preparation in the French army.

This seems consistant with the massive air raids against Iraki targets, starting from the very beginning of the war, and it seems very unlikely that the sole A10s bullets are responsible for uranium detected thousands of kilometers away ! Massive bombs that spray oxyde dust at high altitudes are much more likely to cause dust to be spread in the winds and detected as far as in England.

Similarly, Andor Kerekes et alii found an acute increase[53] in uranium from filters in Hungary during the war au Kosovo in 1999. No way this could come from A10 bullets. No tanks were used in the war. The only possibility : the dust came from GBUs and missiles used by the fighter jets. Which the ICBUW does not want to acknowledge.

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[51] https://web.archive.org/web/20011108102307/http:/www.janes.com/defence/news/jdw/jdw010108_1_n.shtml

[52] http://news.bbc.co.uk/2/hi/americas/2895081.stm

[53] https://www.researchgate.net/publication/12134552_Did_NATO_attacks_in_Yugoslavia_cause_a_detectable_environmental_effect_in_Hungary?ev=srch_pub Kerekes, Capote-Cuellar and Köteles 2001

Asaf Durakovic and the UMRC / UMRI measured very significant levels of uranium, as well as a collection of « Gulf War like-illnesses » in Afghanis near places destroyed by missiles and bombs. See this BBC article for the results : http://news.bbc.co.uk/2/hi/science/nature/3050317.stm « **Afghans' uranium levels spark alert »**. His team noticed the weapons punched through several concrete floors and walls, then buried 3 to 4 meters in the earth before exploding. Bombs and missiles targets are conspicuously absent from both UNEP Balkans DU studies. Formal queries in the UK parliament returned a denial. Still, one UNEP report http://postconflict.unep.ch/publications/BiH_DU_report.pdf on uranium in the Balkans mentions the use of uranium in missile ballasts (in the annex), which obviously means that the uranium is used to pack a bigger punch and is used in great volumes.

Read also Barbara Koeppel's great article[54] for another case where higher concentrations of uranium were found in and near craters of bombs, in Tora Bora, Afghanistan.

A study by Souad Naji Al-Azzawi, a geologist and environmental engineer, also demonstrated significant contamination near places bombed by AGM 154 JSOW missiles in Irak.

The debate has focused on cinetic energy penetrators because these were those that the military indulged in acknowledging they include uranium. But they are not really directly used in urban areas, except perhaps the small caliber A-10 ammunition. Cruise missiles and laser guided bombs, however, are fired directly at military targets hidden deep inside urban areas from GPS guided aircrafts, boats or submarines. They also include generally a mass of uranium that is much heavier than the tank shells. GBU bombs may weigh more than a ton, a high percentage of which is "depleted" uranium. There is also the use of uranium in shaped-charge warheads, as a liner. This is heavily demonstrated by the numerous patents for explosively formed penetrators which include uranium as a liner (for example: the K-charge 6 393 991 in David Williams' list). The liner is the part that is directed by the power of the explosion of the charge directly toward the target.

The 1988 Sandia report[55] on conical shaped charge design says that "Since only a relatively small percentage of the liner thickness forms the high velocity penetrating jet, 5 high density material (platinum, gold, etc.) plating of low density (aluminum for example) material would be very desirables. This would produce a multi-layered liner which would be much more efficient for a given CSC configuration. However, the cost of materials and liner forming processes usually prohibit the use of multi-layered liners. The use of single layered liners of depleted uranium and tantalum has been shown to be very effective". Yet there is no significant US production of tantalum and the country relies on imports for this metal.

The metal said to be used mostly in shaped charges is copper. But one should take a look at this patent used for drilling wells into rock https://www.google.ch/patents/US4441428 (we come back on it later) : "From this expression it can be calculated that if a mean density of 3 grams/cm^3 is taken for hard rock and a jet length of 10 centimeter is considered, then with depleted Uranium used as the liner the penetration would be 25.2 centimeters. However, tests show that the penetration of such a Uranium jet is about 87 centimeters, a factor of 3.5 greater than expected and **a factor of 5 times that measured for the copper jet and for an iron jet 5.4 times greater**." Nevertheless there are alternatives, tungsten can be made into shaped charge, as tungsten carbide, and can act as neutron reflector for low energy nuclear reactions, without fission, and thus without alpha emitters, for cleaner war.

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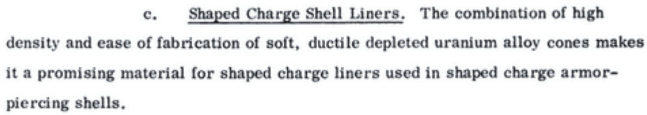
[54] https://washingtonspectator.org/radiation-war-zones-koeppel/ she didn't knew of the use of fission

[55] http://prod.sandia.gov/techlib/access-control.cgi/1988/881790.pdf think of Web Archive if link withdrawn

The interest of uranium for shaped charge liners is known since the beginning of the 1970s at least ! See this book[56] published by the National Academy of Sciences, "Trends in the use of depleted uranium". P. 38 it says :



c. Shaped Charge Shell Liners. The combination of high density and ease of fabrication of soft, ductile depleted uranium alloy cones makes it a promising material for shaped charge liners used in shaped charge armor-piercing shells.

Here is a process for making particulate uranium for liners
http://www.google.ms/patents/US4592790

Making shaped charge liners with Uranium – this is a Canadian defense research report dating back, again, from 1973 https://tinyurl.com/mfpr6b5

This patent has quite a lot of info about uranium in shaped charge warheads
http://www.google.co.ug/patents/US5279228

Here is an hybrid shaped charge / kinetic energy penetrator patent with uranium
http://www.google.je/patents/US4463678

Lastly, here is a report from a US military laboratory (Air Force Armament Laboratory) about uranium liners for shaped charges, dating back from 1979
https://www.cdc.gov/niosh/ocas/pdfs/sec/nucmetals/pet/p195appendd1.pdf

It says that :

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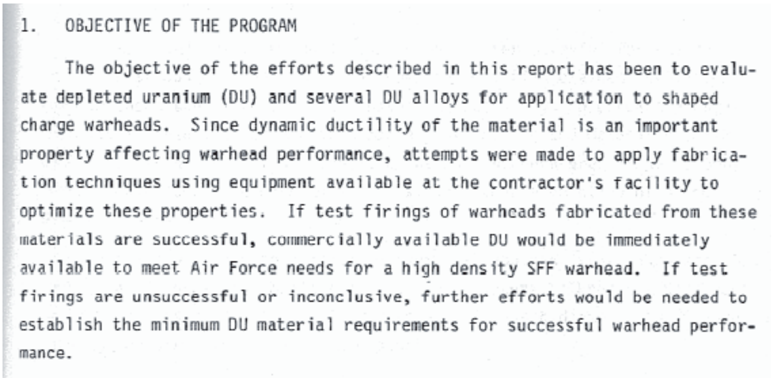
[56] https://books.google.fr/books?id=qJArAAAAYAAJ&pg=PA38&lpg=PA38&dq=shaped+charge+liner+uranium&source=bl&ots=y1QG-EIyHf&sig=GE4XeIc25mhKH6mv2bR-6ycn6S8&hl=fr&sa=X&ved=0ahUKEwilnvnGvejSAhXLhRoKHeR2CSEQ6AEIczAQ#v=onepage&q=shaped%20charge&f=false or https://tinyurl.com/y7mvsms5



1. OBJECTIVE OF THE PROGRAM

The objective of the efforts described in this report has been to evaluate depleted uranium (DU) and several DU alloys for application to shaped charge warheads. Since dynamic ductility of the material is an important property affecting warhead performance, attempts were made to apply fabrication techniques using equipment available at the contractor's facility to optimize these properties. If test firings of warheads fabricated from these materials are successful, commercially available DU would be immediately available to meet Air Force needs for a high density SFF warhead. If test firings are unsuccessful or inconclusive, further efforts would be needed to establish the minimum DU material requirements for successful warhead performance.

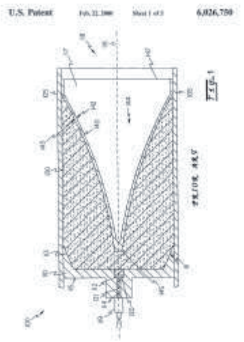
Read again : “if test firings of warheads fabricated from these materials are successful, commercially available DU would be immediately available to meet Air Force needs for a high density SFF warhead”. (SFF warheads are a kind of directed-energy warhead)

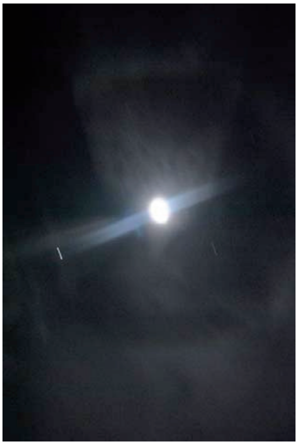
The International Coalition to Ban Uranium Weapons (ICBUW), as I said, claims that “depleted” uranium is used in a limited number of weapons, that is A10 Thunderbolt machine gun bullets and tank shells. I have already provided extensive proof that this is not the case, as Dai Williams already did in the 2008 UNIDIR report on uranium weapons. But here is more.

I bought these things, of course without explosive or detonating device, in a military surplus one and a half year ago, near Canjuers in France. There are neither A10 bullets nor tank shells, the above looks like an anti-tank missile (like a SNEB rocket) and the one below is a Panzerfaust 3 DM-18 UEB-RA. The official training unit for the Panze-rfaust 3, according to the German Wikipedia, is the DM-10, yet the DM-18 is also listed as “Ubung”, to me it is “Uran-Explosiv Bomb” as UEB is the equivalent of WDU and WDU does not mean “dummy” but “explosive” according to Designation-Systems.com (DU actually means, as you may know, depleted uranium, and the WDU list of Designation-Systems closely follows list of weapons suspected to use depleted uranium – the Tomahawk and the ATACMS also have a WDU warhead). Also a rocket against reactive armour (UEB-RA) is even more likely to need uranium (as well as other isotopes, which could easily be hidden under the shell). In the case of the top missile, the **grey ring** in between the yellow part and the rusty head is exactly alike U3F6, the metallic depleted uranium, and had the same ductility. The sintering was also very clear.

I didn’t had a Geiger counter back then, and I never had the opportunity to test them unfortunately. But while I stored them in the back of my house, I noticed a strange, very strange weather phenomenon, once the night had set. I had stored the devices in the bottom of a shower of which three walls were covered by lead, three and a half exactly, as well as the bottom, but not the top of course. Lead is known to be a good protection against radiations.

You can see PERFECTLY the shaped charge pattern in the center, just around the Moon (below).

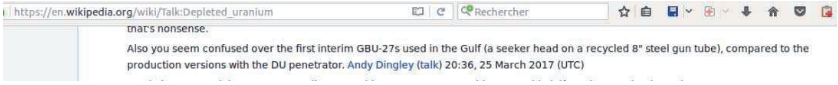




It is the **cloud chamber effect. The beta particles of Th234 and Pa234m are always used to assert contamination with depleted uranium.**

This clearly confirms that uranium is being used in missiles, and not only in a limited number of weapons, contrary to what the ICBUW claims. Let's also note that one testimony from Canjuers acknowledge the « very high level » of radiation near mobile targets used by Leclerc tanks (leading to soldiers being prohibited from going there to cater for the training device), and that a former firefighter has confirmed to me he was aware of the use of « depleted uranium shells » which were starting so much fires he had to stop (he talked about hundreds departures of fires every year which means that fumes contain DU dust and contaminates the surroundings).

Last but not least : following a heated debated on the Wikipedia talk page for the "depleted uranium" article, one user who suppressed all my inputs on uranium and missiles / GBUs nevertheless… acknowledged himself that one big GBU bomb, at least, is industrially produced with a "depleted" uranium penetrator ! (DU for Depleted Uranium)



that's nonsense.

Also you seem confused over the first interim GBU-27s used in the Gulf (a seeker head on a recycled 8" steel gun tube), compared to the production versions with the DU penetrator. Andy Dingley (talk) 20:36, 25 March 2017 (UTC)

Why would it be solely used in the GBU-27, and not in the GBU-24, the GBU-28, the GBU-31, the GBU-37, the GBU-43 Mother of All Bombs, etc. ? And not in all the other heavy bombs and missiles that need it ? All tank drivers know it that uranium is used systematically in anti tank missiles…

In other words : there is DEFINITIVE proof that uranium is being used in GBU bombs and in cruise missiles, as well as in, for instance, anti-tank missiles like the Javelin and artillery shells like the Excalibur and BONUS. The organisations working on uranium weapons need to update their intellectual software and to understand the use of uranium in GBU bombs, in cruise / anti-tank missiles, and in shaped charge warheads.

Below : Geiger in Fallujah city center (tests in 2011 by the Iraqi government, yet with no information provided to the local inhabitants).

G-M Counter Overloads from Sudden Increase in Radioactivity

Left : UMRC (now UMRI) tested a tank in South Iraq with a Geiger, jamming it.

5) Tritium in Canjuers

Tritium is the perfect neutron source, compressed by high explosives, the kinetic energy triggers fusion even at low levels of energy (so called low energy nuclear reactions do not need the thermonuclear energies of an H-bomb!). Carey Sublette from Nuclear Weapons Archive confirms that use of KE to fusion tritium is known since the mid-60s[57]. More experiments like the Mosier-Boss experiment confirm that there are ways to improve the yield, by for instance using energy variations, adding palladium, etc. There is a vast literature regarding low energy nuclear reactions. I have found extremely elevated levels of tritium, using a small Smart Geiger, product able to detect tritium unlike the other low-cost Geigers, near France’s and West Europe’s biggest military camp. The levels were increasing very quickly when coming close to it. The Smart Geiger is a very cheap device yet it has successfully been tested with tritium[58], certainly because the shell is thinner and thus the detector can receive the very slow and unpowerful beta particles of tritium (5,68 keV). Another proof makes it certain it is tritium : « geological spectrometry » thanks to the arsenic minerals in Duranus. The military camp of Canjuers is in Eastern Var, north of Draguignan. Tritium is blown by the wind eastwards (the Mistral is the major wind). Duranus is full of *realgar*, a mineral which reacts with deuteride ions to produce *duranusite*. But water full of tritium can also make it react. I happened to test the rock of the surroundings of the mine in Spring[59], and found indeed extremely elevated levels of radioactivity with my Smart Geiger when pointing it extremely close to the rock, yet the radioactivity disappeared totally whenever taking it a bit away (by even 5 centimeters) : this matches exactly the short range of tritium beta particles. I would also underline my tests with the Geiger on while circulating on the motorway (the Geiger was on, in my car, I would just watch it sometimes evolve), from Antibes to Arles, only two peaks were recorded, one in Draguignan (6 uSv/h) and the other one much farther away, more acute though (250 uSv/h), near Istres military base where nuclear warheads are stored and tritium bottles must have been leaking. Nothing in between, confirming the military origins of both peaks).

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[57] http://nuclearweaponarchive.org/Nwfaq/Nfaq8.html

6) Uranium 236 and potassium 40 excesses in Serbia, more proof of fission

U236 is a byproduct of fission which has been found in vast amounts by Durakovic and Gerdes (UMRC) in Iraq and Afghanistan, and by Busby in Bosnia earlier. It is an artificial isotope, activation product of U235 (neutron capture, « unsuccessful fission »). Durakovic and Gerdes found levels of about 0,0046 %, which is millions of times what would be expected in nature. This was reported by many newspapers, even the New York Times in 2001.

In Serbia, engineer H-W Gabriel and physicist D. Schalch[60] have found in some samples (in target sites) levels of K40 that are 100 times higher than the natural level. It is an activation product that again is proof of the production of fast neutrons by fission at impact of bombs.

7) Some other confirmations :

- No secondary flash seems to happen in most demonstration videos, confirming the need for the tank crew to be inside to trigger fission by delayed neutrons (water is needed in the tank)
- The total lack of Pu239. U238 ballasts are always well separated from the fission device by a neutron reflector, to avoid contamination with an artificial isotope which would look « controversial ». The only case of Pu239 contamination is in Kosovo, nevertheless the Clinton administration (last press conference of 2000) acknowledged « plutonium, neptunium, americium » contamination in weapons ! So as certainly to prevent more controversies in case more transuranic activation products were discovered.

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[58] https://www.youtube.com/watch?v=Al5QsRlh9RY if you are looking for a simple comparison between the Smart Geiger and a professional device : https://www.youtube.com/watch?v=OWsrD_SC1gQ

[59] Another test at the end of a Summer was not fruitful

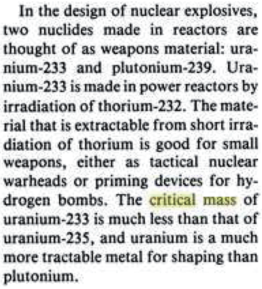
[60] Article by Erika Vögeli, Andreas Bau and Hans Könitzer in Horizons et Débats, Swiss newspaper, n°23, 15 June 2009

- The very elevated levels *inside* tanks may alternatively be linked either to U238 in mass levels or more certainly to fission products. This may explain the Geiger jams pictured above.
- Tritium and beryllium (Be is needed for neutron sources) were detected in Moronvilliers, one place used by the CEA for small explosions which cannot but be little supercritical reactions to test weapon designs. The explosions were able to melt down « 20 centimeters of steel » and in addition to that the concrete block upon which it was installed. A new block had to be created for each test. In the 1980s the CEA had, on this site, an AMX-30 cannon for shell tests[61].
- The insistence of the French government for sodium fast reactors is a good indication : France is close to the Middle East, Na-24 is a very powerful neutron source (thanks to the combined fire effect) which has a short half life, it is the ideal production place.
- Jean-François Féchino and his team from the Arab Commission of Human Rights went to Gaza, found uranium as well as cesium[62].
- « Plutonium anti-tank bullets » reported in Pakistan, a country which loves to brag about its powerful « muscles » as one would expect in a highly nationalistic context[63]
- A small shell tested by CRIIRAD coming from Kosovo, at 22 uSv/h (HP10). Another small shell tested by Prof. Gunther in 1993 (13 uSv/h), leading him to have to pay a fine for illegal import of radioactive material...

8) Thorium

Thorium found in dead shepherds, victims of cancer, in Quirra (Sardinia) can be explained very easily : not from guidance systems but from the use of the unusual U233. U233 produced from Th232 in nuclear reactor. U233 would be extracted but the new extraction process would be imperfect, meaning Th232 impurities that contaminated the surroundings.

U233 fission also generates U234, like U235 fission generates U236. U234 in excess levels was found in the bones of a malformed sheep by health physics Prof. Massimo Zucchetti. Left : extract from the Bulletin of Atomic Scientists, 1983.



In the design of nuclear explosives, two nuclides made in reactors are thought of as weapons material: uranium-233 and plutonium-239. Uranium-233 is made in power reactors by irradiation of thorium-232. The material that is extractable from short irradiation of thorium is good for small weapons, either as tactical nuclear warheads or priming devices for hydrogen bombs. The critical mass of uranium-233 is much less than that of uranium-235, and uranium is a much more tractable metal for shaping than plutonium.

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[61] Thanks to Damien Girard, the mayor, for these informations

[62] http://www.al-monitor.com/pulse/originals/2013/03/cancer-rates-soar-gaza-war.html this article does confirm an increase of cancers in Gaza, from 10,8 % of total deaths in 2010 to 12,4 % in 2011, yet one doctor, Dr Khalid Thaleb, points out that the cancer levels are « similar » in Gaza, Egypt, Jordania and among Arab citizens in Israel. As I stated earlier I have found no occurrence of significant birth defect in Gaza. It is possible that Israel deliberately makes its weapons without DU to reduce contamination of a land it hopes to use in the future. Nevertheless **this is a good indication that producting microfission devices without depleted uranium or another radioactive ballast, by limiting the device to the 95 % HEU tip and a tritium neutron source, means a significant reduction of the environmental effects**.

[63] https://depleteduranium.org/2015/10/09/des-balles-anti-char-au-plutonium-plutonium-based-anti-tank-bullets/ « Depleted plutonium » in the US arsenal according to Jane’s, and « plutonium anti tank bullets » in Pakistan (that is a better confirmation yet « depleted plutonium » could simply mean… Pu239)

The infant birth defects epidemics in Quirra was noted in 1989 – 1990, it may be either because of U233 tests (and thus Th232 pollution[64]) that ended after the Cold War, or simply because of tests with depleted uranium. The camp is located much nearby habitations (a bit closer than in Canjuers where the army has had the basic respect of not installing its camp in the middle of suburbs – hence several cases of cancer around Canjuers, leukemias, lymphomas, brain cancers for instance, but no birth defects have come to my knowledge). The army in Canjuers acknowledged « thorium contamination » on the model of Quirra, to try to divert attention, I believe, to depleted uranium. No reply were ever given on tritium by the French authorities responsible for radioprotection.

9) Oil and gas drilling with shaped charges with fission

Workers in an offshore oil field that could have suffered acute injuries from… radioactivity (British Broadcasting Corporation). Their hands could have suffered injuries for holding one particular radioactive source while working on the well "even just for a few minutes" according to a Health and Safety Exec. That's quite a radioactive shock ! One explanation might actually be the use of neutron spectrometry or another visualisation tech which uses high levels of radioactivity… yet, use of neutron sources for shaped charges used for drilling, using microscopic levels of nuclear fission exactly as it happens in antitank missiles and other military hardware, is clear and can be the other explanation. The convergence that can be seen in Halliburton between drill techs and missile tech as Halliburton owned the JRC, a missile making company, until 1994[65].

It is clear the technology IS being used for other reasons : as an Argonne National Laboratory document suggested, back in 1997, that the technology was "close to be in service" (see p.7 http://web.ead.anl.gov/uranium/pdf/Dubu97KE.pdf). It is quite clear that the technology used is a shaped charge. There is of course the famous 1982 patent from Thomas Wilson for a drilling well with a uranium lined shaped charge.

Used near water sources this would contaminate deeply the resources with uranium particles, highly radiotoxic due to bystander effect at low levels of radiation and of the high RBE of alpha radiation. It would be needed to test water near drilling wells as well as all fuels and refinery stacks (ash) systematically, at least for U238 U235 U236 and fission products. The US National Institute of Environmental Health Science finds up to 370 Bq per liter of radium 226 in fracking effluent. This represents the equivalent of 0.012 grams of uranium 238 per liter, whereas the normal for fresh water revolves around 0.01 – 0.5 micrograms per liter (so we have here at least 24 000 times the normal level of uranium). See also this Forbes article : https://www.forbes.com/sites/jeffmcmahon/2013/04/24/fracking-truck-sets-off-radiation-alarm-at-landfill/#2e385e9936e3 . Even if we compare with water taken from sources of a naturally highly radioactive area, with uranium mining (Limousin), that's **6900 times as much the radium 226 level** (0.053 Bq/L -see p. 2 http://www.criirad.org/actualites/dossier2010/eau/dysfonctionnement.pdf). It's so much that mining plants have set up extraction plants to extract this radium and other effluents.

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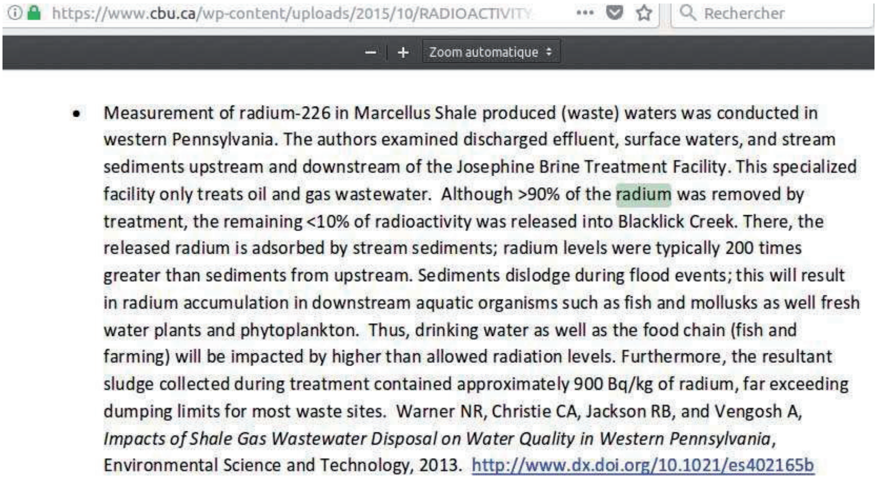
[64] Thorium behaves not the same way as uranium and has reportedly much higher *radiotoxicity* levels which may be caused by the differences in bodily absorption because of *chemical* differences

[65] https://www.halliburtonwatch.org/news/warhead_sale.html

And it is difficult to know whether the NIEHS levels were recorded in water already treated by one of these plants. This is a *very clear* confirmation of the use of radium in shaped charge liners to extract shale gas, oil and other hydrocarbons. Radium 226, which has a strong activity, can be used as neutron source in combination with a light element such as beryllium, for the (a,n) reaction produces fast neutrons (with a cinetic energy above 5 MeV, likely something between 6 and 10 MeV like the Po210 – Beryllium reaction) which can be used (after being slowed down by hydrogen or beryllium) to start fission.

The levels of radium 226 reported in scale, a residue from drilling, are extremely high : up to 15 000 Bq / gram of residue, that is more than the radioactivity of a gram of 238U, according to a Saudi Aramco source. The levels of radon 222, the daughter product of 226 Ra, in propane, are also astonishing : up to 4000 Bq / liter of gas, that is approx 15 000 Bq/ cubic meter ! (http://slideplayer.com/slide/5685972/) For a comparison this is the level of radon found in some buildings in the Azores, near hot springs that produce a constant outpour of radon (volcanic activity is frequently linked to uranium and radon, but not always, it is mostly in hot spots). In a badly ventilated building in a high natural radioactivity area the levels are usually about 150 to 300 Bq/cubic meter of air. Natural gas areas, as well as most oil fields, are far from areas of high radioactivity. Even Pennsylvania isn't an area of uranium mining.



- Measurement of radium-226 in Marcellus Shale produced (waste) waters was conducted in western Pennsylvania. The authors examined discharged effluent, surface waters, and stream sediments upstream and downstream of the Josephine Brine Treatment Facility. This specialized facility only treats oil and gas wastewater. Although >90% of the radium was removed by treatment, the remaining <10% of radioactivity was released into Blacklick Creek. There, the released radium is adsorbed by stream sediments; radium levels were typically 200 times greater than sediments from upstream. Sediments dislodge during flood events; this will result in radium accumulation in downstream aquatic organisms such as fish and mollusks as well fresh water plants and phytoplankton. Thus, drinking water as well as the food chain (fish and farming) will be impacted by higher than allowed radiation levels. Furthermore, the resultant sludge collected during treatment contained approximately 900 Bq/kg of radium, far exceeding dumping limits for most waste sites. Warner NR, Christie CA, Jackson RB, and Vengosh A, *Impacts of Shale Gas Wastewater Disposal on Water Quality in Western Pennsylvania*, Environmental Science and Technology, 2013. http://www.dx.doi.org/10.1021/es402165b

This source is important because it also mentions that the notice of high NORMs (so called "naturally" occuring radioactive materials) in North Sea (a place with no volcanic activity and clearly low radioactivity) dates back from… 1985, that is three years after the patenting of the "depleted" uranium shaped charge. And says that it is from 1985 onwards that oil and gas companies started taking NORMs seriously – certainly to extract the residues from their fission charges.

Table 4: **NORM in oil and gas production (taken from the World Nuclear Association website)**

Radionuclide	**Natural gas Bq/m^3**	**Produced water Bq/L**	**Hard scale Bq/kg**	**Sludge Bq/kg**
U-238		trace	1 - 500	5 - 10
Ra-226		0.002 - 1200	100 - 15 million	50 - 800,000
Po-210	0.002 - 0.08		20 - 1500	4 - 160,000
Pb-210	0.005 - 0.02	0.05 - 190	20 - 75,000	10 - 1.3 million
Rn-222	5 - 200,000			
Th-232		trace	1 - 2	2 - 10
Ra-228		0.3 - 180	50 - 2.8 million	500 - 50,000
Ra-224		0.05 - 40		

Source: IAEA 2003, Safety Report Series 34.

Ra228 can also be used, produced from thorium mines, leaved to « cool down » in shaped charges so as to generate Th228 used for alpha rays as neutron source. The absence of Th232, like the absence of U238, are good indications. No DU liners are needed, solely U235 – not searched for – and a good neutron source, which can be hidden as « naturally present » using claims that geological sands differentiate for instance radium from the other elements, as if so important differences could be explained by a simple geochemical differenciation process.

Conclusion : « Phantom fury »

The AR 700-48 army regulation imposes that the US army cleans up pieces of land that are contaminated by depleted uranium, yet it is never – ever – applied as the waiver right granted by the regulation is always used.

The CIA had made experiments, as we said, in the 40s, and the information of the internal dangerousness of alpha emitters was thus well known very early. The use of DU ballasts could be substituted with non radioactive elements, like tungsten carbide for density, zirconium for inflammability, or tungsten hydride to have both effects. A shaped charge made with tungsten hydrid inside, tungsten carbide outside, tritium pellets (maybe inside micro pellets of gold like in the National Ignition Facility experiments, here laser ignition is substituted by kinetic energy) could be a perfect alternative, and the fact that a target is hard and resistant does not hinder the effect, on the contrary it self sharpens as the compression will increase neutron reflection and thus compaction of energy into a powerful explosion[66].

The use of alpha emitters for oil drilling – fracking should be prohibited. Small pieces of 95 % HEU do not represent a significant alpha activity as opposed to the heavy Curies needed for the neutron source, hence the priority is to use tritium sources for drilling, nevertheless I hope that the abovementioned low energy nuclear energy alternative could be used too one day for drilling (or better, that we stop drilling the few remains of oil and gas still present in the Earth's crust).

Nevertheless since the information of the dangerosity of internal contamination with alpha emitters was clearly available to US intelligence from the end of the 40s, the massive use of depleted uranium from Vietnam cannot but be interpretated as a massive attempt at sterilizing the land, an environmental weapon. The targeting of civilians for political reasons shall be defined as a war crime AND a crime against humanity since the first definition of crime against humanity included political motives (until Stalin managed to take that part out of the definition, for obvious Gulag reasons) ; furthermore the racial motive was prevalent. In Iraq it is the same situation at least in Fallujah where the intent of land cleaning was obvious : a Sunni-dominated city, which used to support Saddam Hussein. The name of the operation itself, « Phantom Fury », says it all. DU dust is the phantom part. Same in Afghanistan after 9/11 : vengeance against a population suspected to support the Taliban. It is also highly likely that Saudi Arabia, today, in Yemen, has the same intents, for religious motives (against a Shia-dominated region, which is also much greener and less sterile than Saudi Arabia - « l'Arabie heureuse » (« Merry Arabia ») was the name given by Swiss historian Jean de Sismondi to Yemen). The massive use of depleted uranium in Northern Pakistan can be suggested through explosive cancer trends – same in Syria. It may be a true intent of sterilizing lands and cleaning it of its people, maybe with agreement from Pakistani and Syrian officials. All of these are genocides. It is in fact the best definition ever of genocide : alpha particles destroy genes and create defects that accumulate and increase through generations (because healthy carriers may have defects which will express when conjoining with other healthy carriers). These are attempts at sterilizing peoples for political, racial and religious motives. It is a crime against humanity and will start up more jihadi movements attacking blindly civilians everywhere as reprisal against decisions taken by their governments and militaries. The innocent bystander taken as scapegoat, as always. We will suffer many more terrorist attacks caused by jihadists recruited with pictures of birth defects caused by OUR OWN WEAPONS. That’s it.

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[66] This is solely a suggestion but seems to make lots of sense

Annex : Listing of radioactive sources out of war areas

- Radon (check your local levels, the level may be elevated in buildings made from cement coming from high natural radioactivity mines)
- Water from sources in high radioactivity areas. Careful with dessalinated water.
- Animals fed with that water will accumulate these radioelements, *this should explain a lot of the carcinogenity of meat*
- Phosphated fertilizers which also mean tobacco contamination (maybe one day less carcinogenic cigarettes thanks to the end of K use in tobacco culture ?)
- Fuel
- Coals mean radioactivity in fumes[67], http://www.world-nuclear.org/information-library/safety-and-security/radiation-and-health/naturally-occurring-radioactive-materials-norm.aspx more depending on where the coal comes from. Chinese coal would be especially unclean
- All mines in highly naturally radioactive areas – tailings are a source of contamination
- Volcanic ash

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[67] Gür, Yaprak, https://www.ncbi.nlm.nih.gov/pubmed/21992698

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